PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 10 January 2001 (10.01.01)	
International application No. PCT/IB00/00826	**Applicant's or agent's file reference** PAT99322 PCT
International filing date (day/month/year) 07 June 2000 (07.06.00)	**Priority date** (day/month/year) 07 June 1999 (07.06.99)
Applicant PEDERSEN, Claus et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

06 December 2000 (06.12.00)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer S. Mafla
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
United States of America

in its capacity as elected Office

Date of mailing (day/month/year) 11 December 2002 (11.12.02)	
International application No. PCT/US01/28577	**Applicant's or agent's file reference** 440462031604
International filing date (day/month/year) 11 September 2001 (11.09.01)	**Priority date** (day/month/year) 11 September 2000 (11.09.00)
Applicant O'SHAUGHNESSY, Roger et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

08 April 2002 (08.04.02)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Leslie BARRIOS
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
PAT99322 PCT		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IB 00/00826	07/06/2000	07/06/1999
Applicant		
NOKIA MOBILE PHONES LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 4

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 00/00826

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 17227 A (IBM UK ;IBM (US)) 8 April 1999 (1999-04-08)	33
A	page 14, line 4 -page 15, line 27 page 21, line 19 - line 27	1-32
A	SIETMANN R: "MOBIL INS INTERNET. WIRELESS APPLICATION PROTOCOL ADAPTIERT MOBILTELEFONE FUER DAS WWW" CT MAGAZIN FUER COMPUTER TECHNIK,DE,VERLAG HEINZ HEISE GMBH., HANNOVER, no. 4, 1998, pages 202-207, XP000732823 ISSN: 0724-8679 the whole document	1-33

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 October 2000	16/10/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Heinrich, D

1

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IB 00/00826

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9917227 A	08-04-1999	US 6085193 A	04-07-2000
		EP 1018085 A	12-07-2000

PCT REQUEST PAT99322 PCT

Original (for SUBMISSION) - printed on 06.06.2000 05:19:43 PM

0 0-1	**For receiving Office use only** International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4 0-4-1	**Form - PCT/RO/101 PCT Request** Prepared using	PCT-EASY Version 2.90 (updated 08.03.2000)
0-5	**Petition** The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	**Receiving Office (specified by the applicant)**	International Bureau of the World Intellectual Property Organization (RO/IB)
0-7	**Applicant's or agent's file reference**	PAT99322 PCT
I	**Title of invention**	A CELLULAR COMMUNICATION TERMINAL, A METHOD AND A SYSTEM FOR ACCESSING SERVERS.
II II-1 II-2 II-4 II-5 II-6 II-7 II-8 II-9	**Applicant** This person is: Applicant for Name Address: State of nationality State of residence Telephone No. Facsimile No.	applicant only all designated States except US NOKIA MOBILE PHONES LIMITED KEILALAHDENTIE 4 FIN-02150 ESPOO Finland FI FI +358 24 3061 +358 24 30 64544
III-1 III-1-1 III-1-2 III-1-4 III-1-5 III-1-6 III-1-7	**Applicant and/or inventor** This person is: Applicant for Name (LAST, First) Address: State of nationality State of residence	applicant and inventor US only PEDERSEN, Claus NORDMARKSVAENGE 44 DK-2625 VALLENSBAEK Denmark DK DK

PCT REQUEST PAT99322 PCT

Original (for SUBMISSION) - printed on 06.06.2000 05:19:43 PM

III-2	**Applicant and/or inventor**	
III-2-1	This person is:	applicant and inventor
III-2-2	Applicant for	US only
III-2-4	Name (LAST, First)	VESTERGAARD, Bjarne
III-2-5	Address:	ABSALONSGADE 38 4 tv. DK-1658 COPENHAGEN Denmark
III-2-6	State of nationality	DK
III-2-7	State of residence	DK
IV-1	**Agent or common representative; or address for correspondence** The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name (LAST, First)	HAWS, Helen
IV-1-2	Address:	NOKIA IPR DEPARTMENT NOKIA HOUSE SUMMIT AVENUE SOUTHWOOD FARNBOROUGH, Hampshire GU14 0NG United Kingdom
IV-1-3	Telephone No.	+44 1252 865 000
IV-1-4	Facsimile No.	+44 1252 865 080
IV-1-5	e-mail	helen.haws@nokia.com
IV-2	**Additional agent(s)**	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	HIGGIN, Paul; HIBBERT, Juliet; JEFFERY, Kendra; FRAIN, Timothy; MUIR, Henry
V	**Designation of States**	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AP: GH GM KE LS MW SD SL SZ TZ UG ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT EP: AT BE CH&LI CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE and any other State which is a Contracting State of the European Patent Convention and of the PCT OA: BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT

PCT REQUEST PAT99322 PCT

Original (for **SUBMISSION**) - printed on 06.06.2000 05:19:43 PM

V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	AE AG AL AM AT AU AZ BA BB BG BR BY CA CH&LI CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW	
V-5	**Precautionary Designation Statement** In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under Item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	**Exclusion(s) from precautionary designations**	NONE	
VI-1	**Priority claim of earlier national application**		
VI-1-1	Filing date	07 June 1999 (07.06.1999)	
VI-1-2	Number	9913193.0	
VI-1-3	Country	GB	
VI-2	**Priority claim of earlier national application**		
VI-2-1	Filing date	26 October 1999 (26.10.1999)	
VI-2-2	Number	9925334.6	
VI-2-3	Country	GB	
VII-1	**International Searching Authority Chosen**	European Patent Office (EPO) (ISA/EP)	
VIII	**Check list**	number of sheets	electronic file(s) attached
VIII-1	Request	4	–
VIII-2	Description	26	–
VIII-3	Claims	8	–
VIII-4	Abstract	1	99322pct.txt
VIII-5	Drawings	7	–
VIII-7	TOTAL	46	
	Accompanying items	paper document(s) attached	electronic file(s) attached
VIII-8	Fee calculation sheet	✓	–
VIII-9	Separate signed power of attorney	✓	–
VIII-12	Priority document(s)	Item(s) VI-2	–
VIII-16	PCT-EASY diskette	–	diskette
VIII-18	**Figure of the drawings which should accompany the abstract**	4	
VIII-19	**Language of filing of the international application**	English	

PCT REQUEST

PAT99322 PCT

Original (for **SUBMISSION**) - printed on 06.06.2000 05:19:43 PM

IX-1	Signature of applicant or agent	
IX-1-1	Name (LAST, First)	HAWS, Helen

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

JONES,Kendra
NOKIA IPR DEPARTMENT
Nokia House, Summit Avenue
Southwood
Farnborough
Hampshire GU14 0NG
GRANDE BRETAGNE

Comp Record
File Record
Diary
12 OCT 2001
Renewal Record
Citations
Inv Award

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Letter
cc

Date of mailing *(day/month/year)* 10.10.2001

Applicant's or agent's file reference
PAT99322 PCT

IMPORTANT NOTIFICATION

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB00/00826	07/06/2000	07/06/1999

Applicant
NOKIA MOBILE PHONES LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Barrio Baranano, A

Tel.+49 89 2399-8621

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
PAT99322 PCT		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB00/00826	07/06/2000	07/06/1999
International Patent Classification (IPC) or national classification and IPC H04L29/06		
Applicant NOKIA MOBILE PHONES LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☐ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
06/12/2000	10.10.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Dechmann, J-L Telephone No. +49 89 2399 8826

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/00826

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1,3-9,12,13,15-18, 20-26	as originally filed			
2,10,11,14,19	as received on	13/07/2001	with letter of	11/07/2001

Claims, No.:

1-31	as originally filed			
32,33	as received on	13/07/2001	with letter of	11/07/2001

Drawings, sheets:

1/7,2/7,4/7,5/7, 7/7	as originally filed			
3/7,6/7	as received on	13/07/2001	with letter of	11/07/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☒ the entire international application.

☐ claims Nos. .

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☒ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.
☐ the computer readable form has not been furnished or does not comply with the standard.

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

See section VIII.

VII. Certain defects in the international application

I

The following documents have been considered for the purposes of this report:

D1: WO-A-99/17227

D2: CT MAGAZIN FÜR COMPUTER TECHNIK,DE,VERLAG HEINZ HEISE GMBH., HANNOVER, no. 4, 1998, pages 202-207, SIETMANN R: "MOBIL INS INTERNET. WIRELESS APPLICATION PROTOCOL ADAPTIERT MOBILTELEFONE FÜR DAS WWW", XP000732823

II

The Applicant chose not to address some of the objections because of his opinion that they were a particular interpretation of the PCT by the EPO. The International Preliminary Examining Authority can only strongly disagree with this assertion. The task of the International Preliminary Examining Authority it is to check that the application complies **with all** the PCT regulations and not to put any particular interpretation on it.

These defects are therefore reiterated:

1. To meet the requirements of Rule 6.3(b) PCT, the independent claims should be properly cast in the two-part form, with those features which in combination are part of the prior art (see document D1), being placed in the preamble.

2. To meet the requirements of Rule 5.1(a)(ii) PCT, documents D1-D2 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

3. In order to fulfil the requirements of Rule 5.1(a)(iii) PCT, the description should be brought into conformity with the new claims.
Furthermore, following from the disclosure of document D1, the statement indicating the technical problem to be solved by the invention requires a revision which should be effected taking the requirements of Rule 5.1(a)(iii) PCT into account.

4. The general statement "**incorporated by reference**" in line 8 on page 10 is not clear. Therefore, either a short acknowledgement of the relevant subject-matter of the corresponding document, to which said statement refers, should, in accordance with Article 34(2)(b) PCT, be added to the description, or, if said document is not relevant for the performance of the invention, such statement should be deleted (cf. also PCT Guidelines Chap-II-4.17 and 6.3).

VIII. Certain observations on the international application

1a. The various definitions of the invention given in independent apparatus claims 1 and 33 are such that the claims as a whole are not clear and concise, contrary to Article 6 PCT. The claims should be recast to include only the minimum necessary number of independent claims in any one category (Rule 6.4(a)-(c) PCT).

In the present case it is considered appropriate to use only **one** independent claim

in any category.

1b. This opinion is also corroborated by the fact that independent device claim 33 relates to the establishment of a session with a proxy with an access to a server after a connection with a second proxy, whereas independent apparatus claim 1 is not concerned with proxies at all.
It seems, therefore, that there is no inventive concept linking these two claims and the number of independent claims should be restricted also for this reason.

2a. Independent claim 1 is not clear (Article 6 PCT) in that the term "linking means" is too vague and has another established meaning in the field of cellular telecommunications (see also PCT Guidelines II-4.14). A linking means represents normally something physical like a wire, a cable or a radio wave link. It seems however from the description that the Applicant means a gateway or a proxy, i.e. a software program controlling the access to a server.

The Applicant in his letter of reply to the written opinion has cited a definition of a dictionary to support his view that the term "linking means" was sufficiently clear to define a gateway. This definition : "hardware and software that connect incompatible computer networks" however shows indeed that a gateway is not a simple piece of cable (actual scope of protection of claim 1) but a software program controlling the access to a server.

The Applicant's argument was therefore not considered as convincing.

(i). This problem of clarity is emphasized by dependent claim 5 which specifies that the linking means are a desktop computer or a portable computer. Claim 5, therefore, shows that the linking means cannot be just a piece of cable like the actual scope of claim 1 but has to be a computer.
However claim 5 introduces a further problem of clarity in that all the description defines these linking means as being either a gateway or a proxy (i.e. a server fonctionnality) and never mentions once a portable or a

desktop computer, which makes the understanding of claim 1 even more difficult.
Indeed the portability of the server (gateway or of the proxy) is never an issue in the all description and these features are therefore not supported by the description. It is not at all clear from the description what kind of technical problem would be solved by making this linking means portable.
The Applicant is of the opinion that today it is obvious for a skilled person that a computer could be a portable or a desktop. This is certainly true for a computer but there is no explanation in the description why a server (i.e. a proxy or a gateway) should be made portable in the context of the present invention. A skilled person would indeed never construe of a portable computer when reading the present application as it is obviously not a portable computer which should be used in a server context.
The International Preliminary Examining Authority therefore is of the opinion that claim 1 and also specially in combination with claim 5 is not supported by the description.
It is also not understood why a feature (i.e. portable computer) which is never disclosed in the description is to be found in the claims whereas a feature which seems indispensable in view of the entire description (proxy or gateway) is not to be found anywhere in the claims.

(ii). This opinion is corroborated by the attitude of the Applicant in response to the written opinion concerning the clarity of the original description itself. It was pointed out to the Applicant that, for example, page 11, line 21, of the original description mentions: "...and **linking means**. Even if **the** gateway is usually...", showing that the word linking means actually refers to a gateway. To "clarify" this matter, the Applicant has taken a mere formalistic approach by replacing the word gateway with linking means, thereby formally and syntaxically improving this passage of the description yet ignoring that the main issue raised which objected to the vagueness of the term linking means and not to the term "gateway".

2b. Furthermore claim 1 is not supported by the description (Article 6 PCT) when using the broad formulation "for accessing servers" because not specifying that, in order to be able to access this server, a special protocol has to be used: a **WAP** protocol. Indeed the all description and all the figures only disclose an access to a server with a WAP protocol. Furthermore, it is not understood how the system of the invention would work without using a WAP protocol.

On this point, the attention of the Applicant is drawn to the PCT Guidelines Chap III-6.5 which specify that "a claim may broadly define a feature in terms of its function. In general, however, if the **entire contents of the application** are such as to convey the **impression** that a function is to be carried out in a particular way, then an objection of clarity arises. Furthermore, it may not be sufficient if the description states in vague terms that other means may be adopted, **if it is not reasonably clear** what they might be or how they might be used.".

The Applicant is of the opinion that there is no need to limit the scope of the invention as the skilled person would know that the invention could be used in other technologies like i-mode.
The International Preliminary Examining Authority cannot share this opinion.
It cannot be expected, when an application is disclosing one and only one environment (i.e when nearly every page is mentioning the WAP environment and when all the embodiments and all the figures concern only this WAP environment) and when not a single hint is given in the description that other environments could be used, that a skilled person would consider that another environment is possible. There is also no disclosure of how the method could be adapted to any other environment.
It is therefore considered that, contrary to the assertions of the Applicant, the entire application conveys the impression that the method and the system of the application are used in a particular environment (WAP) and that any other environment is not supported by the description.

3. The same objection of clarity applies equally well to the corresponding method claim 12 and system claim 21.

4. The present formulation of claim 33 is unclear in that it seeks to replace essential features by referring to features which concern the effect which it is desired to achieve.

   The vague formulations " a transceiver **being arranged to establish a session...**", "allowing access to the server **such that...**" are essentially equivalent to a formulation of the type: " comprising means to achieve the solution aimed at" and is in this case not sufficient to clearly define the invention (Article 6 PCT and PCT Guidelines C-III, 4.7).

   It is rather the technical features which allow the transceiver to achieve this effect (e.g. constructional details of the various components or sub-circuits, in other words means) which should appear in the apparatus claim 33.

5. A problems of clarity occurs in the description, page 14, line 21: "...first or second linking means...". No first and second linking means have been defined in the previous paragraphs and it is not understood why suddenly two different linking means should be used. Indeed all the previous paragraphs starting from page 12, line 8 ("The linking means 360 in this example is typically a gateway or a proxy...") concern an embodiment with only one linking means. Is it another embodiment? Why two linking means and what for? What are their reference signs in the figures?

6. In view of the above objections it has not been possible for the International Preliminary Examining Authority to establish an opinion in respect of novelty and inventive step.

US-A-5,657,390. The WAP Architecture 20 comprises a Wireless Application Protocol (WAE) 22 corresponding to HTML 12, a Wireless Session Layer (WSP) 24 corresponding to HTTP 14, a Wireless Transport Layered Security (WTLS) 26 corresponding to TLS / SSL 16, and a Wireless Transport Layer (WTP) 28 corresponding to TCP / UDP 18. Furthermore, the WAP Architecture comprises different bearers 29 like e.g. SMS, USSD and CDMA 30. Other devices and applications are indicated as reference number 21. There is also a possibility to implement different kinds of services and applications in the WAP Architecture, e.g. Value Added Services (VAS). The WAP Architecture 20 is well known prior art and is therefore not being disclosed any further. More detailed information about WAP can at present be found at the following Internet address: http://www.wapforum.org/

When using a WAP browser today, the session is normally between a dedicated gateway, connected to a server, and a client like a cellular phone. A gateway can be a computer that lies at the intersection of a server to be accessed and a client, and routes traffic from one or several servers to the client. Thus, the gateway provides a link between two disparate types of electronic communications such as the WAP architecture and the Internet architecture. If the user would like to access a remote server, i.e. a server which is located elsewhere than the server connected to the dedicated gateway, the access can in some way be restricted, or in some cases not allowed. For example, a user would like to receive information about his/her flight points from an airline company, which can be accessed through another gateway than the dedicated gateway. In this case, the browser in the phone will normally first establish a connection to the dedicated gateway. Then, the dedicated gateway will detect that the request is to another gateway than the dedicated gateway. This means that the browser application should initiate a linking application, e.g. a gateway application, in order to establish a session to the other gateway. The user must today confirm this request to initiate the session to the other server, and provide the browser with input of the location

embodiment, the scroll key can be a roller key (not shown), which is arranged to rotate in one or several directions. The roller allows the user to roll the key to scroll between different items in a menu. In case of a roller key, the soft key 8 could be arranged to the roller, i.e. upon pressing on the roller the same functionality, as the operation key has, could be entered. The roller key has a functionality corresponding to what is known from e.g. the phone Nokia 7110™, which also supports the Wireless Application Protocol (WAP). The roller key is incorporated by reference in US patent 6,097,964.

Fig. 3 schematically shows the most essential parts of a preferred embodiment of the phone. These parts being essential to understand the invention. The preferred embodiment of the phone of the invention is adapted for use in connection with a GSM network, but, of course, the invention may also be applied in connection with other phone networks, such as other kinds of cellular networks and various forms of cordless phone systems or in dual band phones accessing sets of these systems/networks. The microphone 6 records the user's speech, and the analogue signals formed thereby are A/D converted in an A/D converter (not shown) before the speech is encoded in an audio part 14. The encoded speech signal is transferred to control means 18. The control means 18 comprises a processor, which may support software in the phone. The control means 18 also forms the interface to the peripheral units of the apparatus, wherein the peripheral units can comprise a RAM memory 17a and a Flash ROM memory 17b, a SIM card 16, the display 3 and the keypad 2 (as well as data, power supply, etc.). The control means 18 communicates with a transmitter/receiver means 19, e.g. a circuit which is adapted to send/receive a request/respond to/from a telecommunication network. The audio part 14 speech-decodes the signal, which is transferred from the control means18 to the earpiece 5 via a D/A converter (not shown).

The control means 18 is connected to the user interface. Thus, it is the control means 18 which monitors the activity in the phone and controls the display 3 in response thereto. Therefore, it is the control means 18 which detects the occurrence of a state change event and changes the state of the phone and thus the display text. A state change event may be caused by the user when he activates the keypad including the navigation key 10, and these type of events are called entry events or user events. However, the network communicating with the phone may also cause a state change event. This type of event and other events beyond the user's control are called non user events. Non user events comprise status change during call set-up, change in battery voltage, change in antenna conditions, message on reception of SMS, etc.

Accessing servers from a cellular communication terminal.

Figure 4 schematically shows a system 301, comprising a cellular communication terminal 300, a cellular network 310, and a plurality of web servers 320 and 340 in an Internet network 350. The Internet network 350 uses World Wide Web (WWW) protocols. The cellular network 310 is arranged to establish a wireless connection 305 between a plurality of cellular terminals 300 and linking means 360. Even if the linking means is usually connected to a server to be accessed, it is possible that the linking means may be integrated together with the server to be accessed, as well.

The terminals 300 is able to access a web server 320 via the linking means 360. In general, the linking means 360 is arranged to enable a session for the cellular communication terminal 300 and to forward data packets between the terminal and the web server 320. Thus, the web server 320 is arranged to receive and/or transmit data packets from/to the terminal 300. The transfer of data packets is often mentioned as pull and/or push. A pull could be

predictable availability. The WAP architecture is optimised for narrow bandwidth bearers with potentially high latency and is optimised for efficient use of device resources.

In order to communicate with the cellular network 310 and to receive and transmit data packets from at least one web server 320 through the gateway 360, the cellular communication terminal 300 comprises a receiver and a transmitter, see also Fig.3 ref. no. 19. The terminal 300 further comprises a first memory, see Fig.3 ref. no. 16 and 17b, provided with an identifier and at least one item. The item is provided with an access point which indicates the location of the server to be accessed, which could be indicated by means of a URL (Uniform Resource Locator) address. In addition, the item can also comprise data packets from earlier sessions which is updated upon a new session to the same access point. The identifier is used to identify the content at the address provided by the server, wherein the server is accessed by sending the identifier to the linking means to identify which type of content is requested at the server.

Yet another advantageous embodiment is that the terminal can be arranged to give the server access rights to read and/or write to the terminal through first or second linking means. This can be done by providing the browser with a Wireless Telephony Application (WTA) user agent. The WTA is a part of the standard in WAP, and is an application framework for telephony services. The WTA user-agent could be described as a user-agent similar to a standard WML user-agent with the addition of capabilities for interfacing with mobile network services available to a mobile telephony device, e.g. setting up and receiving phone calls.

Figure 7 describes one example of the WTA framework, which is intended to provide an overview of the WTA architecture. Figure 7 also illustrates how a

of how the user interface can be displayed during a session is shown in Fig. 6a-c. The input means is shown in Fig. 2 as the keypad 2. The browser can be arranged in a ROM memory or on a SIM card, as shown in Fig. 3 ref. No. 17b and 16, respectively.

In an another preferred embodiment, the terminal can be provided with a second memory, which is arranged to copy items from a session. Thus, the items from a session can be stored in this second memory. Typically, this second memory can be a cache memory, which means that the items from the latest session can be temporarily saved in the second memory. The cache memory could be identified as the RAM memory 17a in Fig. 3. As an alternative, it can also be possible to save the items from a session in a permanent storage memory, which means that the user is able to confirm if the items are going to be saved or deleted. The permanent storage memory could be identified as the SIM card 16 and/or the ROM memory 17b as shown in Fig. 3.

In accordance with the present invention, the browser application is arranged dynamically. This means that, if an access point indicates a location to a second gateway 330, which gives access to the server 340, the browser application will automatically activate the transmitter to send a request to the first gateway 360 to access the server 340 through the second gateway 330. This request can comprise the URL address of the server, together with the identifier, identifying the content of the requested content, and that the user will accept to connect to another gateway, in order to reach this address. Thus, this will allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means. Naturally, it can still be possible to enable an authorisation confirmed by the user, but this could slow down the user, when he/she is going to browse to a gateway which is not the first gateway. Of course, there might be

32. A system according to claim 30 or 31, characterized in that said browser is provided with a Wireless Telephony Application (WTA) user agent, in order to form an interface which supports
security and privacy in the terminal.

33. A communication device for accessing a server accessible via a proxy, the device comprising a transceiver, the transceiver being arranged to establish a session with a proxy, the proxy allowing access to the server such that where a further proxy provides access to said server a connection is first formed between said proxies.

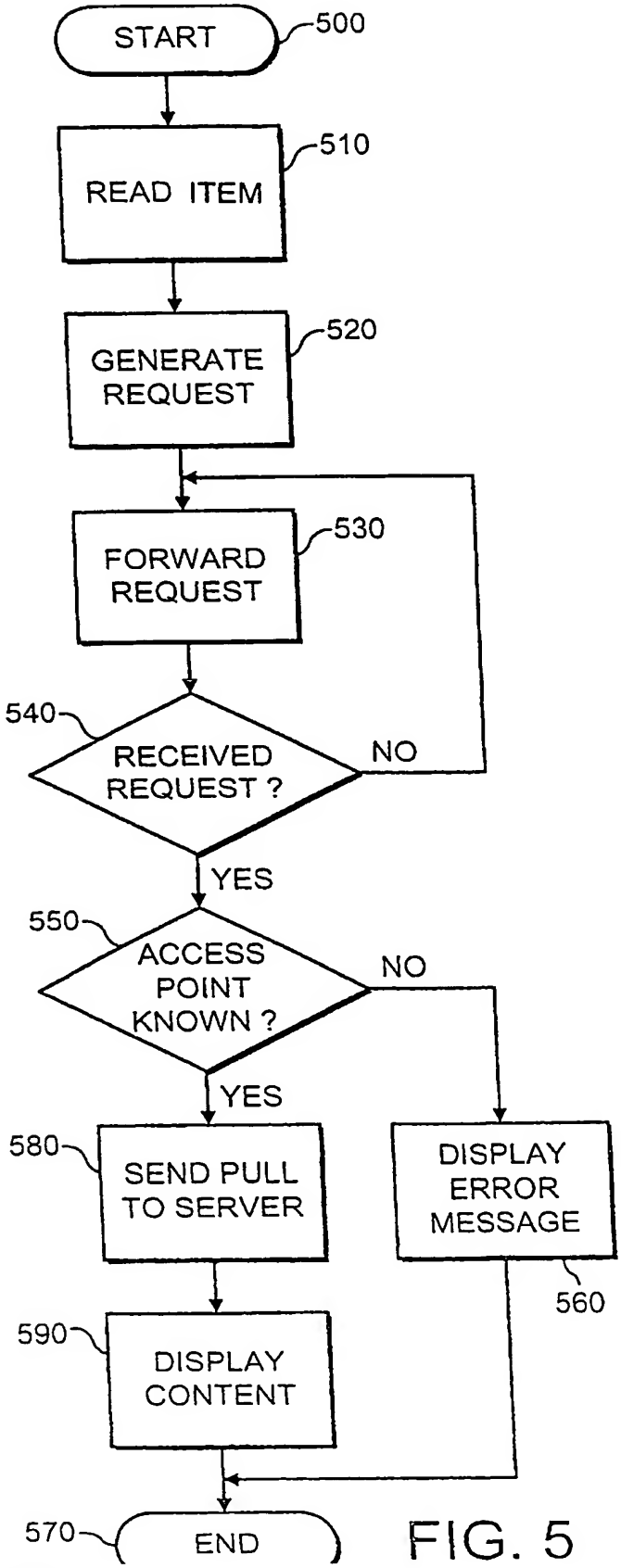
START
500
READ ITEM
510
GENERATE REQUEST
520
FORWARD REQUEST
530
540
RECEIVED REQUEST ?
NO
YES
550
ACCESS POINT KNOWN ?
NO
YES
580
SEND PULL TO SERVER
DISPLAY ERROR MESSAGE
560
590
DISPLAY CONTENT
570
END

FIG. 5

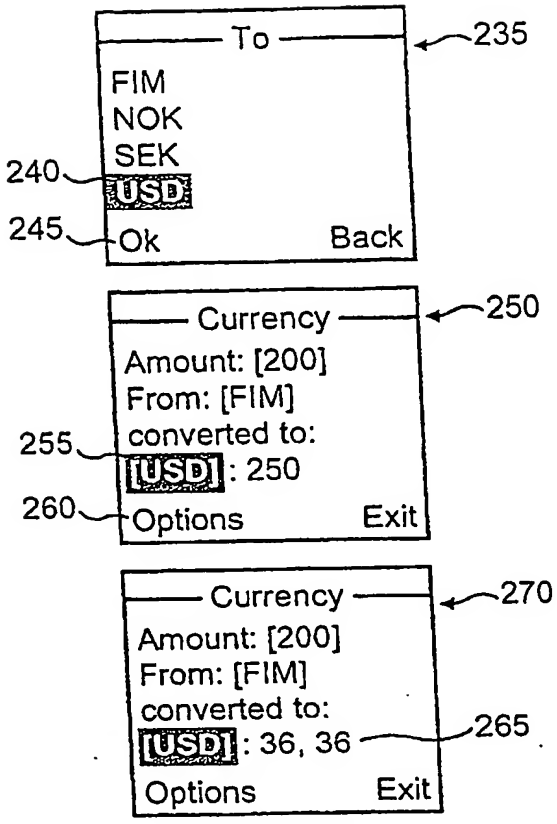

FIG. 6c

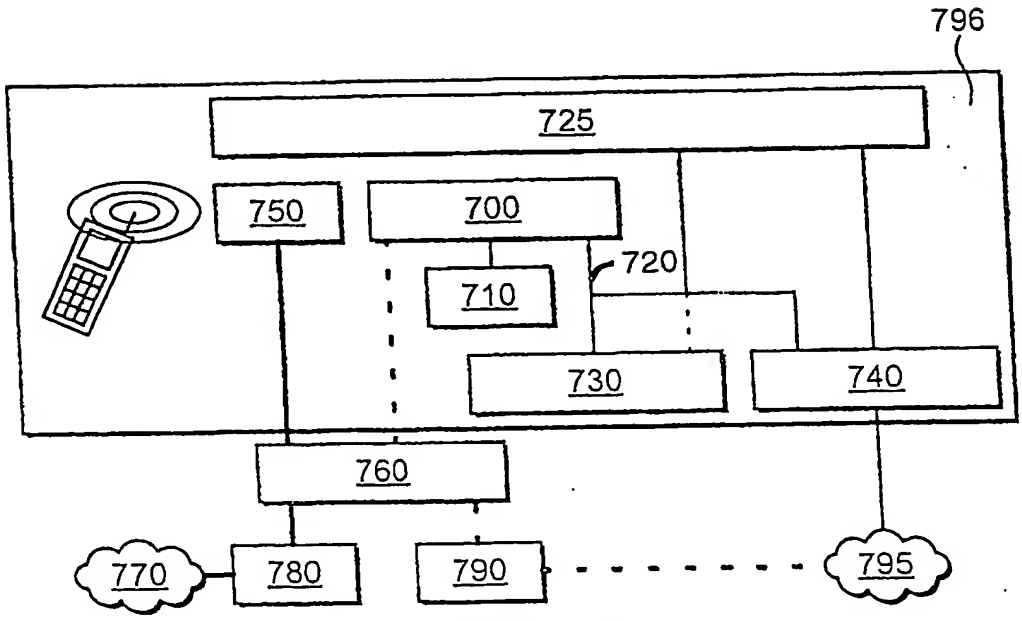

FIG. 7

AMENDED SHEET

14

PATENT COOPERATION TREATY

PCT

REC'D 12 OCT 2001
WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
PAT99322 PCT		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB00/00826	07/06/2000	07/06/1999
International Patent Classification (IPC) or national classification and IPC H04L29/06		
Applicant NOKIA MOBILE PHONES LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☐ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
06/12/2000	10.10.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Dechmann, J-L Telephone No. +49 89 2399 8826

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB00/00826

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1,3-9,12,13,15-18, 20-26	as originally filed			
2,10,11,14,19	as received on	13/07/2001	with letter of	11/07/2001

Claims, No.:

1-31	as originally filed			
32,33	as received on	13/07/2001	with letter of	11/07/2001

Drawings, sheets:

1/7,2/7,4/7,5/7, 7/7	as originally filed			
3/7,6/7	as received on	13/07/2001	with letter of	11/07/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☒ the entire international application.

☐ claims Nos. .

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
see separate sheet

☒ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.
☐ the computer readable form has not been furnished or does not comply with the standard.

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

See section VIII.

VII. Certain defects in the international application

I

The following documents have been considered for the purposes of this report:

D1: WO-A-99/17227

D2: CT MAGAZIN FÜR COMPUTER TECHNIK,DE,VERLAG HEINZ HEISE GMBH., HANNOVER, no. 4, 1998, pages 202-207, SIETMANN R: "MOBIL INS INTERNET. WIRELESS APPLICATION PROTOCOL ADAPTIERT MOBILTELEFONE FÜR DAS WWW", XP000732823

II

The Applicant chose not to address some of the objections because of his opinion that they were a particular interpretation of the PCT by the EPO. The International Preliminary Examining Authority can only strongly disagree with this assertion. The task of the International Preliminary Examining Authority it is to check that the application complies **with all** the PCT regulations and not to put any particular interpretation on it.

These defects are therefore reiterated:

1. To meet the requirements of Rule 6.3(b) PCT, the independent claims should be properly cast in the two-part form, with those features which in combination are part of the prior art (see document D1), being placed in the preamble.

2. To meet the requirements of Rule 5.1(a)(ii) PCT, documents D1-D2 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.

3. In order to fulfil the requirements of Rule 5.1(a)(iii) PCT, the description should be brought into conformity with the new claims.
Furthermore, following from the disclosure of document D1, the statement indicating the technical problem to be solved by the invention requires a revision which should be effected taking the requirements of Rule 5.1(a)(iii) PCT into account.

4. The general statement "**incorporated by reference**" in line 8 on page 10 is not clear. Therefore, either a short acknowledgement of the relevant subject-matter of the corresponding document, to which said statement refers, should, in accordance with Article 34(2)(b) PCT, be added to the description, or, if said document is not relevant for the performance of the invention, such statement should be deleted (cf. also PCT Guidelines Chap-II-4.17 and 6.3).

VIII. Certain observations on the international application

1a. The various definitions of the invention given in independent apparatus claims 1 and 33 are such that the claims as a whole are not clear and concise, contrary to Article 6 PCT. The claims should be recast to include only the minimum necessary number of independent claims in any one category (Rule 6.4(a)-(c) PCT).

In the present case it is considered appropriate to use only **one** independent claim

in any category.

1b. This opinion is also corroborated by the fact that independent device claim 33 relates to the establishment of a session with a proxy with an access to a server after a connection with a second proxy, whereas independent apparatus claim 1 is not concerned with proxies at all.
It seems, therefore, that there is no inventive concept linking these two claims and the number of independent claims should be restricted also for this reason.

2a. Independent claim 1 is not clear (Article 6 PCT) in that the term "linking means" is too vague and has another established meaning in the field of cellular telecommunications (see also PCT Guidelines II-4.14). A linking means represents normally something physical like a wire, a cable or a radio wave link. It seems however from the description that the Applicant means a gateway or a proxy, i.e. a software program controlling the access to a server.

The Applicant in his letter of reply to the written opinion has cited a definition of a dictionary to support his view that the term "linking means" was sufficiently clear to define a gateway. This definition : "hardware and software that connect incompatible computer networks" however shows indeed that a gateway is not a simple piece of cable (actual scope of protection of claim 1) but a software program controlling the access to a server.

The Applicant's argument was therefore not considered as convincing.

(i). This problem of clarity is emphasized by dependent claim 5 which specifies that the linking means are a desktop computer or a portable computer. Claim 5, therefore, shows that the linking means cannot be just a piece of cable like the actual scope of claim 1 but has to be a computer.
However claim 5 introduces a further problem of clarity in that all the description defines these linking means as being either a gateway or a proxy (i.e. a server fonctionnality) and never mentions once a portable or a

desktop computer, which makes the understanding of claim 1 even more difficult.
Indeed the portability of the server (gateway or of the proxy) is never an issue in the all description and these features are therefore not supported by the description. It is not at all clear from the description what kind of technical problem would be solved by making this linking means portable.
The Applicant is of the opinion that today it is obvious for a skilled person that a computer could be a portable or a desktop. This is certainly true for a computer but there is no explanation in the description why a server (i.e. a proxy or a gateway) should be made portable in the context of the present invention. A skilled person would indeed never construe of a portable computer when reading the present application as it is obviously not a portable computer which should be used in a server context.
The International Preliminary Examining Authority therefore is of the opinion that claim 1 and also specially in combination with claim 5 is not supported by the description.
It is also not understood why a feature (i.e. portable computer) which is never disclosed in the description is to be found in the claims whereas a feature which seems indispensable in view of the entire description (proxy or gateway) is not to be found anywhere in the claims.

(ii). This opinion is corroborated by the attitude of the Applicant in response to the written opinion concerning the clarity of the original description itself. It was pointed out to the Applicant that, for example, page 11, line 21, of the original description mentions: "...and **linking means**. Even if **the** gateway is usually...", showing that the word linking means actually refers to a gateway. To "clarify" this matter, the Applicant has taken a mere formalistic approach by replacing the word gateway with linking means, thereby formally and syntaxically improving this passage of the description yet ignoring that the main issue raised which objected to the vagueness of the term linking means and not to the term "gateway".

2b. Furthermore claim 1 is not supported by the description (Article 6 PCT) when using the broad formulation "for accessing servers" because not specifying that, in order to be able to access this server, a special protocol has to be used: a **WAP** protocol. Indeed the all description and all the figures only disclose an access to a server with a WAP protocol. Furthermore, it is not understood how the system of the invention would work without using a WAP protocol.

On this point, the attention of the Applicant is drawn to the PCT Guidelines Chap III-6.5 which specify that "a claim may broadly define a feature in terms of its function. In general, however, if the **entire contents of the application** are such as to convey the **impression** that a function is to be carried out in a particular way, then an objection of clarity arises. Furthermore, it may not be sufficient if the description states in vague terms that other means may be adopted, **if it is not reasonably clear** what they might be or how they might be used.".

The Applicant is of the opinion that there is no need to limit the scope of the invention as the skilled person would know that the invention could be used in other technologies like i-mode.
The International Preliminary Examining Authority cannot share this opinion.
It cannot be expected, when an application is disclosing one and only one environment (i.e when nearly every page is mentioning the WAP environment and when all the embodiments and all the figures concern only this WAP environment) and when not a single hint is given in the description that other environments could be used, that a skilled person would consider that another environment is possible. There is also no disclosure of how the method could be adapted to any other environment.
It is therefore considered that, contrary to the assertions of the Applicant, the entire application conveys the impression that the method and the system of the application are used in a particular environment (WAP) and that any other environment is not supported by the description.

3. The same objection of clarity applies equally well to the corresponding method claim 12 and system claim 21.

4. The present formulation of claim 33 is unclear in that it seeks to replace essential features by referring to features which concern the effect which it is desired to achieve.

   The vague formulations " a transceiver **being arranged to establish a session**...", "allowing access to the server **such that**..." are essentially equivalent to a formulation of the type: " comprising means to achieve the solution aimed at" and is in this case not sufficient to clearly define the invention (Article 6 PCT and PCT Guidelines C-III, 4.7).

   It is rather the technical features which allow the transceiver to achieve this effect (e.g. constructional details of the various components or sub-circuits, in other words means) which should appear in the apparatus claim 33.

5. A problems of clarity occurs in the description, page 14, line 21: "...first or second linking means...". No first and second linking means have been defined in the previous paragraphs and it is not understood why suddenly two different linking means should be used. Indeed all the previous paragraphs starting from page 12, line 8 ("The linking means 360 in this example is typically a gateway or a proxy...") concern an embodiment with only one linking means. Is it another embodiment? Why two linking means and what for? What are their reference signs in the figures?

6. In view of the above objections it has not been possible for the International Preliminary Examining Authority to establish an opinion in respect of novelty and inventive step.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION** see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
PAT99322 PCT		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IB 00/ 00826	07/06/2000	07/06/1999
Applicant		
NOKIA MOBILE PHONES LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 4

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

To:
NOKIA IPR DEPARTMENT
Nokia House, Summit Avenue
Attn. HAWS, Helen
Southwood
Farnborough
Hampshire GU14 ONG
UNITED KINGDOM

Comp Record
File Record
Diary
13 OCT 2000
Renewal Record
Citations
Pay Award
Letters

Applicant's or agent's file reference PAT99322 PCT	Date of mailing (day/month/year) 16/10/2000 **FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/IB 00/ 00826	International filing date (day/month/year) 07/06/2000
Applicant NOKIA MOBILE PHONES LIMITED et al.	

1. [X] The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Fascimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. [ ] The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

[ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90*bis*.1 and 90*bis*.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Stylianos Vasilakis

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/IB 00/00826

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9917227 A	08-04-1999	US 6085193 A	04-07-2000
		EP 1018085 A	12-07-2000

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 00/00826

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 17227 A (IBM UK ;IBM (US)) 8 April 1999 (1999-04-08)	33
A	page 14, line 4 -page 15, line 27 page 21, line 19 - line 27	1-32
A	SIETMANN R: "MOBIL INS INTERNET. WIRELESS APPLICATION PROTOCOL ADAPTIERT MOBILTELEFONE FUER DAS WWW" CT MAGAZIN FUER COMPUTER TECHNIK,DE,VERLAG HEINZ HEISE GMBH., HANNOVER, no. 4, 1998, pages 202-207, XP000732823 ISSN: 0724-8679 the whole document	1-33

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 October 2000	16/10/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Heinrich, D

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US-A-5,657,390. The WAP Architecture 20 comprises a Wireless Application Protocol (WAE) 22 corresponding to HTML 12, a Wireless Session Layer (WSP) 24 corresponding to HTTP 14, a Wireless Transport Layered Security (WTLS) 26 corresponding to TLS / SSL 16, and a Wireless Transport Layer (WTP) 28 corresponding to TCP / UDP 18. Furthermore, the WAP Architecture comprises different bearers 29 like e.g. SMS, USSD and CDMA 30. There is also a possibility to implement different kinds of services and applications in the WAP Architecture, e.g. Value Added Services (VAS). The WAP Architecture 20 is well known prior art and is therefore not being disclosed any further. More detailed information about WAP can at present be found at the following Internet address: http://www.wapforum.org/

When using a WAP browser today, the session is normally between a dedicated gateway, connected to a server, and a client like a cellular phone. A gateway can be a computer that lies at the intersection of a server to be accessed and a client, and routes traffic from one or several servers to the client. Thus, the gateway provides a link between two disparate types of electronic communications such as the WAP architecture and the Internet architecture. If the user would like to access a remote server, i.e. a server which is located elsewhere than the server connected to the dedicated gateway, the access can in some way be restricted, or in some cases not allowed. For example, a user would like to receive information about his/her flight points from an airline company, which can be accessed through another gateway than the dedicated gateway. In this case, the browser in the phone will normally first establish a connection to the dedicated gateway. Then, the dedicated gateway will detect that the request is to another gateway than the dedicated gateway. This means that the browser application should initiate a linking application, e.g. a gateway application, in order to establish a session to the other gateway. The user must today confirm this request to initiate the session to the other server, and provide the browser with input of the location

embodiment, the scroll key can be a roller key (not shown), which is arranged to rotate in one or several directions. The roller allows the user to roll the key to scroll between different items in a menu. In case of a roller key, the soft key 8 could be arranged to the roller, i.e. upon pressing on the roller the same functionality, as the operation key has, could be entered. The roller key has a functionality corresponding to what is known from e.g. the phone Nokia 7110™, which also supports the Wireless Application Protocol (WAP). The roller key is incorporated by reference in US patent application 08/923,696.

Fig. 3 schematically shows the most essential parts of a preferred embodiment of the phone. These parts being essential to understand the invention. The preferred embodiment of the phone of the invention is adapted for use in connection with a GSM network, but, of course, the invention may also be applied in connection with other phone networks, such as other kinds of cellular networks and various forms of cordless phone systems or in dual band phones accessing sets of these systems/networks. The microphone 6 records the user's speech, and the analogue signals formed thereby are A/D converted in an A/D converter (not shown) before the speech is encoded in an audio part 14. The encoded speech signal is transferred to control means 18. The control means 18 comprises a processor, which may support software in the phone. The control means 18 also forms the interface to the peripheral units of the apparatus, wherein the peripheral units can comprise a RAM memory 17a and a Flash ROM memory 17b, a SIM card 16, the display 3 and the keypad 2 (as well as data, power supply, etc.). The control means 18 communicates with a transmitter/receiver means 19, e.g. a circuit which is adapted to send/receive a request/respond to/from a telecommunication network. The audio part 14 speech-decodes the signal, which is transferred from the control means18 to the earpiece 5 via a D/A converter (not shown).

The control means 18 is connected to the user interface. Thus, it is the control means 18 which monitors the activity in the phone and controls the display 3 in response thereto. Therefore, it is the control means 18 which detects the occurrence of a state change event and changes the state of the phone and thus the display text. A state change event may be caused by the user when he activates the keypad including the navigation key 10, and these type of events are called entry events or user events. However, the network communicating with the phone may also cause a state change event. This type of event and other events beyond the user's control are called non user events. Non user events comprise status change during call set-up, change in battery voltage, change in antenna conditions, message on reception of SMS, etc.

Accessing servers from a cellular communication terminal.

Figure 4 schematically shows a system 301, comprising a cellular communication terminal 300, a cellular network 310, and a plurality of web servers 320 and 340 in an Internet network 350. The Internet network 350 uses World Wide Web (WWW) protocols. The cellular network 310 is arranged to establish a wireless connection 305 between a plurality of cellular terminals 300 and linking means 360. Even if the gateway is usually connected to a server to be accessed, it is possible that the gateway may be integrated together with the server to be accessed, as well.

The terminals 300 is able to access a web server 320 via the linking means 360. In general, the linking means 360 is arranged to enable a session for the cellular communication terminal 300 and to forward data packets between the terminal and the web server 320. Thus, the web server 320 is arranged to receive and/or transmit data packets from/to the terminal 300. The transfer of data packets is often mentioned as pull and/or push. A pull could be

predictable availability. The WAP architecture is optimised for narrow bandwidth bearers with potentially high latency and is optimised for efficient use of device resources.

In order to communicate with the cellular network 310 and to receive and transmit data packets from at least one web server 320 through the gateway 360, the cellular communication terminal 300 comprises a receiver and a transmitter, see also Fig.3 ref. no. 19. The terminal 300 further comprises a first memory, see Fig.3 ref. no. 16 and 17b, provided with an identifier and at least one item. The item is provided with an access point which indicates the location of the server to be accessed, which could be indicated by means of a URL (Uniform Resource Locator) address. In addition, the item can also comprise data packets from earlier sessions which is updated upon a new session to the same access point. The identifier is used to identify the content at the address provided by the server, wherein the server is accessed by sending the identifier to the linking means to identify which type of content is requested at the server.

Yet another advantageous embodiment is that the terminal can be arranged to give the server access rights to read and/or write to the terminal through the first or the second linking means. This can be done by providing the browser with a Wireless Telephony Application (WTA) user agent. The WTA is a part of the standard in WAP, and is an application framework for telephony services. The WTA user-agent could be described as a user-agent similar to a standard WML user-agent with the addition of capabilities for interfacing with mobile network services available to a mobile telephony device, e.g. setting up and receiving phone calls.

Figure 7 describes one example of the WTA framework, which is intended to provide an overview of the WTA architecture. Figure 7 also illustrates how a

of how the user interface can be displayed during a session is shown in Fig. 6a-c. The input means is shown in Fig. 2 as the keypad 2. The browser can be arranged in a ROM memory or on a SIM card, as shown in Fig. 3 ref. No. 17b and 16, respectively.

In an another preferred embodiment, the terminal can be provided with a second memory, which is arranged to copy items from a session. Thus, the items from a session can be stored in this second memory. Typically, this second memory can be a cache memory, which means that the items from the latest session can be temporarily saved in the second memory. The cache memory could be identified as the RAM memory 17a in Fig. 3. As an alternative, it can also be possible to save the items from a session in a permanent storage memory, which means that the user is able to confirm if the items are going to be saved or deleted. The permanent storage memory could be identified as the SIM card 16 and/or the ROM memory 17b as shown in Fig. 3.

In accordance with the present invention, the browser application is arranged dynamically. This means that, if the access point indicates a location to a second gateway 330, which gives access to the server 340, the browser application will automatically activate the transmitter to send a request to the first gateway 360 to access the server 340 through the second gateway 330. This request can comprise the URL address of the server, together with the identifier, identifying the content of the requested content, and that the user will accept to connect to another gateway, in order to reach this address. Thus, this will allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means. Naturally, it can still be possible to enable an authorisation confirmed by the user, but this could slow down the user, when he/she is going to browse to a gateway which is not the first gateway. Of course, there might be

32. A cellular communication terminal according to claim 30 or 31, characterized in that said browser is provided with a Wireless Telephony Application (WTA) user agent, in order to form an interface which supports security and privacy in the terminal.

33. A communication device for accessing a server accessible via a proxy, the device comprising a transceiver, the transceiver being operable to establish a session with a proxy, the proxy allowing access to the server such that where a further proxy provides access to said server a connection is first formed between said proxies.

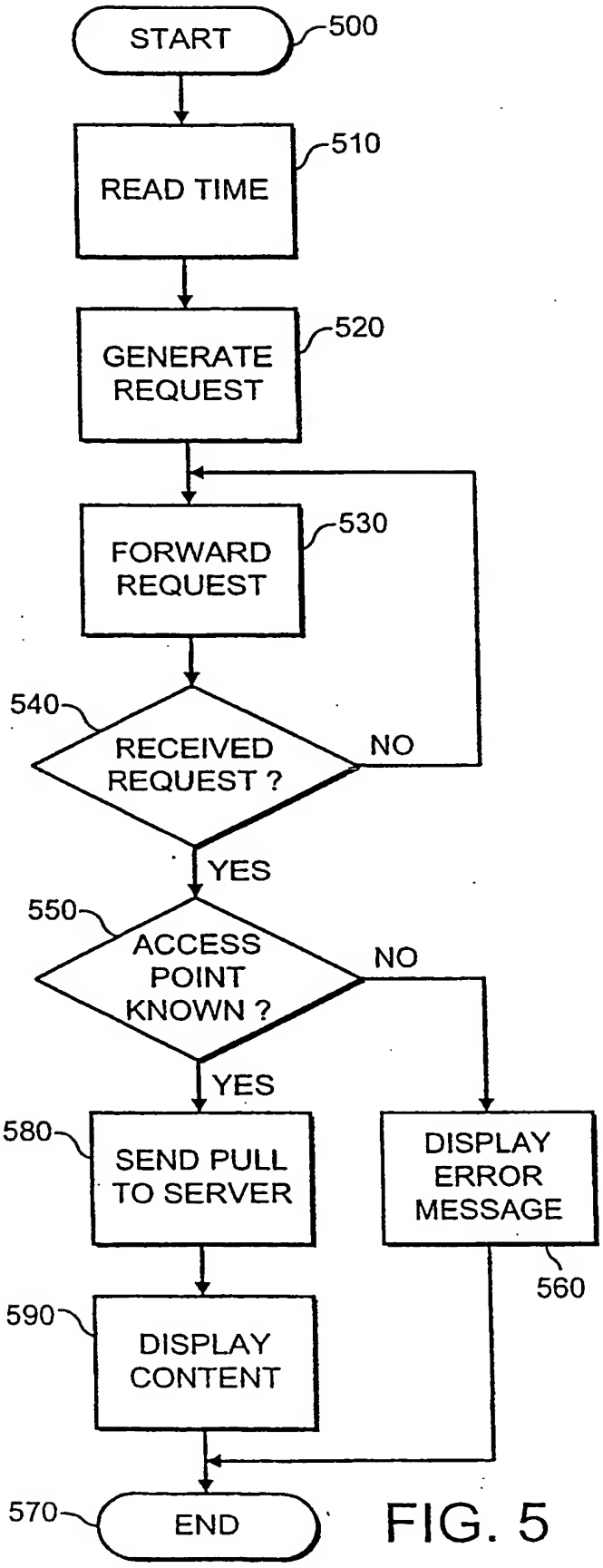
START
500
READ TIME
510
GENERATE REQUEST
520
FORWARD REQUEST
530
540
RECEIVED REQUEST ?
NO
YES
550
ACCESS POINT KNOWN ?
NO
YES
580
SEND PULL TO SERVER
DISPLAY ERROR MESSAGE
560
590
DISPLAY CONTENT
570
END

FIG. 5

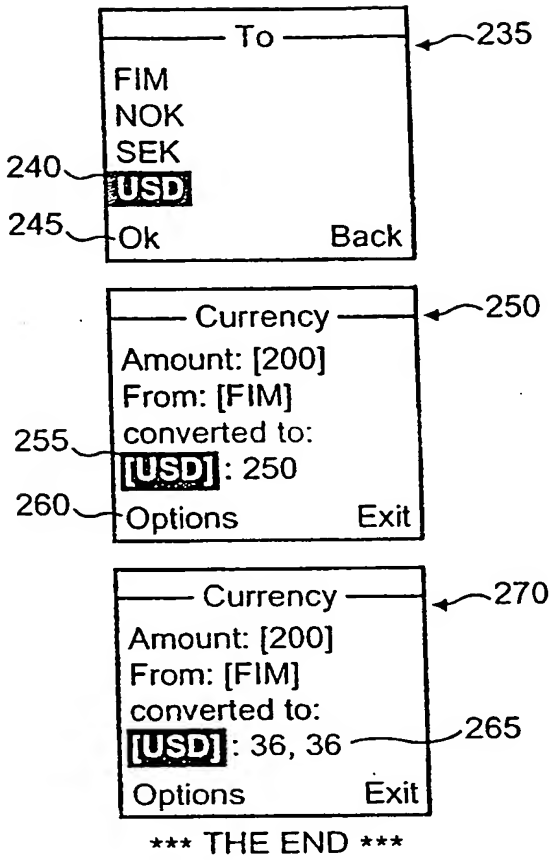
To
235
FIM
NOK
SEK
240
USD
245
Ok
Back
Currency
250
Amount: [200]
From: [FIM]
converted to:
255
[USD]: 250
260
Options
Exit
Currency
270
Amount: [200]
From: [FIM]
converted to:
[USD]: 36, 36
265
Options
Exit
*** THE END ***

FIG. 6c

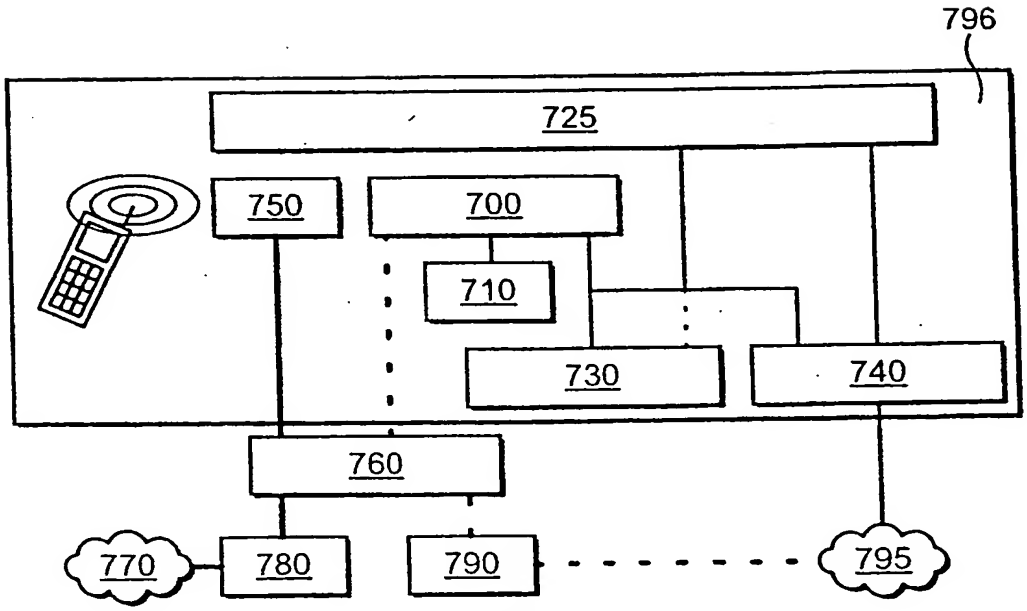
796
725
750
700
710
730
740
760
770
780
790
795

FIG. 7

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

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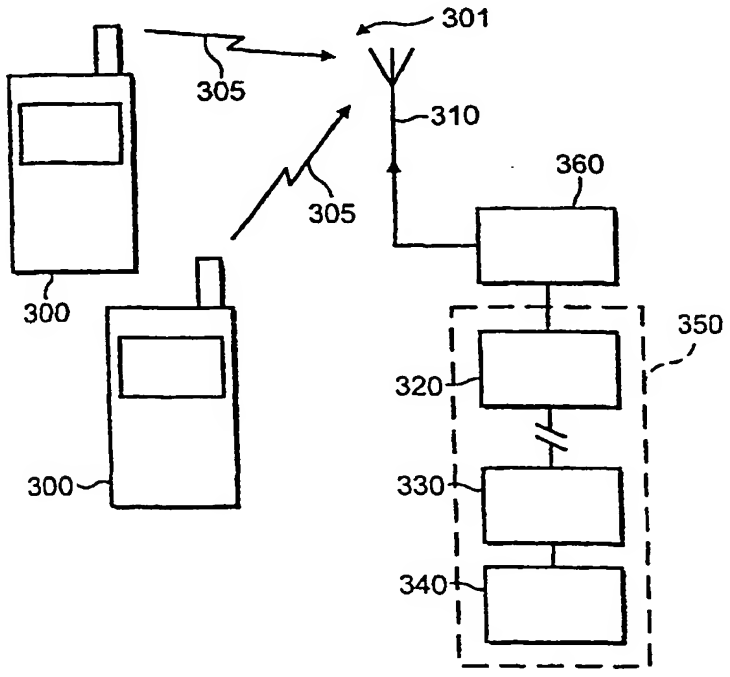
Published:
— *With international search report.*

[Continued on next page]

(54) Title: A CELLULAR COMMUNICATION TERMINAL, A METHOD AND A SYSTEM FOR ACCESSING SERVERS



(57) **Abstract:** A system (301), a method, and a cellular communication terminal (1, 300) for accessing servers (320-360). The cellular communication terminal (1, 300) is arranged with a receiver and a transmitter (19), to receive and transmit data packets from at least one server (320, 340) through linking means (360). The linking means is arranged to forward the data packets between the terminal (1, 300) and the server (320, 340). The terminal is further arranged with a first memory (16, 17b) comprising an identifier and at least one item. The item is provided with an access point, which indicates the location of the server (320, 340) to be accessed. The server (320, 340) is accessed by sending the access point and the identifier to the linking means (360) to identify the content to be accessed. A browser application is arranged in the terminal, to establish a session to at least a first linking means (360), by reading an item from the first memory (16, 17b). Also, the terminal has a user interface (2, 3, 4, 5, 6) connected to the browser application. The user interface comprises display means (3) for displaying content and user input means (2, 4, 6) to control the browser application.

WO 00/76172 A1

— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

A cellular communication terminal, a method and a system for accessing servers.

The invention relates to a cellular terminal, method and a system for accessing different servers from a cellular terminal.

The Wireless Application Protocol (WAP) is a result of continuous work to define an industry wide standard for developing applications over cellular communication networks. This makes it possible to access for example the Internet or other kind of information networks provided with hypermedia servers, from an ordinary cellular phone supporting WAP. These types of cellular phones which supports WAP, have only a small fraction of the resources of a typical desktop or portable computer. This means that the features in the phone are very limited compared to a computer. The reason for this limitation is the size of the phones, i.e. the phone has a severe limitation in processing power, memory space, display size and buttons or keys by which a user can request, view and manipulate information obtained from a hypermedia server. Therefore, it is very important that the features in the phone are made as efficient as possible. Also, the relatively high cost for a call from a cellular phone makes it also very important to provide the client with a fast response from the server.

The WAP Architecture is very similar to the Internet Architecture. Fig.1 shows a comparison between the Internet Architecture 10 and the WAP Architecture 20. The Internet Architecture 10 comprises a Hypertext Markup Language (HTML) 12, e.g. Java Script, a Hypertext Transfer Protocol (HTTP) 14, Transport Layered Security (TLS) / Secure Sockets Layer (SSL) 16, and a Transport Configuration Protocol (TCP) / User Datagram Protocol (UDP) 18. The Internet Architecture 10 is well known prior art, and is disclosed in e.g. in

ART 34 AMDT

US-A-5,657,390. The WAP Architecture 20 comprises a Wireless Application Protocol (WAE) 22 corresponding to HTML 12, a Wireless Session Layer (WSP) 24 corresponding to HTTP 14, a Wireless Transport Layered Security (WTLS) 26 corresponding to TLS / SSL 16, and a Wireless Transport Layer (WTP) 28 corresponding to TCP / UDP 18. Furthermore, the WAP Architecture comprises different bearers 29 like e.g. SMS, USSD and CDMA 30. Other devices and applications are indicated as reference number 21. There is also a possibility to implement different kinds of services and applications in the WAP Architecture, e.g. Value Added Services (VAS). The WAP Architecture 20 is well known prior art and is therefore not being disclosed any further. More detailed information about WAP can at present be found at the following Internet address: http://www.wapforum.org/

When using a WAP browser today, the session is normally between a dedicated gateway, connected to a server, and a client like a cellular phone. A gateway can be a computer that lies at the intersection of a server to be accessed and a client, and routes traffic from one or several servers to the client. Thus, the gateway provides a link between two disparate types of electronic communications such as the WAP architecture and the Internet architecture. If the user would like to access a remote server, i.e. a server which is located elsewhere than the server connected to the dedicated gateway, the access can in some way be restricted, or in some cases not allowed. For example, a user would like to receive information about his/her flight points from an airline company, which can be accessed through another gateway than the dedicated gateway. In this case, the browser in the phone will normally first establish a connection to the dedicated gateway. Then, the dedicated gateway will detect that the request is to another gateway than the dedicated gateway. This means that the browser application should initiate a linking application, e.g. a gateway application, in order to establish a session to the other gateway. The user must today confirm this request to initiate the session to the other server, and provide the browser with input of the location

of the other gateway. Now, the phone can first establish a connection to the dedicated gateway, which in turn will cause the gateway to send a pull/push to the other gateway for the requested homepage, comprising the user's flight points. However, this means that the user must be provided with many different linking applications, e.g. one for each gateway, which accordingly takes up valuable memory space in the already limited space in a cellular phone.

Also, when browsing to an address on a network server, which is situated elsewhere than the dedicated gateway, the user should confirm this entry and register this on his/her radio terminal every time a session is going to be established to the other server. This confirmation/registration procedure is intended to be some kind of alert to the user when he/she is switching from one gateway to another, but this will cause a delay in the response and requires that the user confirms this as well. Therefore, there is a need to make a faster and simplified connection to the WAP server which provides the requested information to the user.

An aim of the present invention is to provide a faster response to a user of a cellular telecommunication terminal supporting browsing facilities, like a cellular phone, which allow the user to be free from or at least minimise interaction, when accessing servers that is accessed through other linking means than the dedicated linking means.

According to a first aspect of the present invention, there is provided a cellular communication terminal for accessing servers (320-360), said terminal comprising

- a receiver and a transmitter (19) arranged to receive and transmit data packets from at least one server (320,340) through linking means (360)

arranged to forward the data packets between the terminal (1,300) and the server (320,340);

- a first memory (16,17b) comprising an identifier and at least one item, the item is provided with an access point which indicates the location of the server (320,340) to be accessed, wherein the server (320,340) is accessed by sending the identifier to the linking means (360) to identify the content to be accessed at the server (320,340);
- a browser application, arranged to establish a session to at least a first linking means (360) by reading an item from the first memory (16,17b), and
- a user interface (2,3,4,5,6) connected to the browser application having display means (3) for displaying content received from the server (320,340) and user input means (2,4,5) to control the browser application,

characterised in that the browser application is arranged dynamically, such that if the access point indicates a location to a second linking means (330) giving access to the server (340), the browser application will automatically activate the transmitter (19) to send a request to the first linking means (360) to access said server (340) through second linking means (330), in order to allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means.

According to a further aspect of the invention, there is provided a method for accessing servers through a cellular communication terminal (1,300), said communication terminal comprising a first memory (16,17b) and a browser application, wherein the method comprises the following steps:

- reading an item (510) in said first memory (16,17b) and an identifier, by means of said browser application, said item comprising at least one access point indicating the location of a server (320,340) to be accessed;

- generating a request (520) by means of said browser application, said request comprising information of the requested access point, and the identifier identifies the content of the requested access point,
- initiating a session to a first linking means (360), by forwarding the request from the communication terminal (1,300) to the first linking means (360), said linking means send data packets between the terminal (1,300) and the server (320,340),
- identifying the request (550) at the first linking means (360), and
- establishing a session between said terminal (1,300) and said first linking means (360) by sending a response from the first linking means to the terminal,

characterised in that the browser application is dynamic, such that if the access point is indicating a location to a second linking means (330) giving access to said server (340), the browser application is automatically activating a transmitter (19) by sending a request to the first linking means (360), forwarding the request to said second linking means (330) and providing access (580) to the server (340), in order to allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means.

According to a still further aspect of the invention, there is provided a system (301) for accessing servers (320-360), said system (301) comprising

- a cellular communication terminal (1,300) having:
  - a receiver and a transmitter (19) arranged to receive and transmit data packets from at least one server (320,340) through linking means (360) arranged to forward the data packets between the terminal (1,300) and the server (320,340);
  - a first memory (16,17b) comprising an identifier and at least one item, the item is provided with an access point which indicates the location of the server (320,340) to be accessed, wherein the server (320,340) is

accessed by sending the access point and the identifier to the linking means (360) to identify the content to be accessed;

- a browser application, arranged to establish a session to at least a first linking means (360) by reading an item from the first memory (16,17b), and
- a user interface (2,3,4,5,6) connected to the browser application, having display means (3) for displaying content and user input means (2,4,6) to control the browser application,
- a cellular communication network (310), arranged to establish a connection (305) between the cellular communication terminal (1,300) and linking means (360),
- at least one first linking means (360), arranged to enable a session for said cellular communication terminal (1,300) and to forward data packets between the terminal and a server (320,340), and
- at least one server (320,340), arranged to receive and/or transmit data packets from/to the terminal (1,300),

characterised in that the browser application is arranged dynamically, such that if the access point indicates a location to second linking means (330) giving access to the server (340), the browser application will automatically activate the transmitter (19) to send a request to the first linking means (360) to access said server (340) through second linking means (330), in order to allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means.

According to a yet further aspect of the invention, there is provided a communication device for accessing a server accessible via a proxy, the device comprising a transceiver, the transceiver being operable to establish a session with a proxy, the proxy allowing access to the server such that where a further proxy provides access to said server a connection is first formed between said proxies.

The further proxy may allow access to a secure server whose address is returned by a server accessed from the proxy with which the transceiver has established a session. By allowing access to the secure server through the connection between the proxies, the user is relieved from the requirement to establish a new session to access the secure server. This has particular advantage where a user initially wishes to access the general content of an on-line bank for example and then wishes to obtain confidential information relating to their account.

A particular advantageous embodiment, is to provide the terminal with a script, which will provide provisions for accessing servers through linking means. This means that it can be possible to save valuable memory space in the terminal, since the terminal does not have to be provided with the different provisions which is required to access different linking means, like a gateway or a proxy. A provision can be a linking application, which a certain gateway requires to establish a session. Then the browser can, by means of the script, pull a linking application from a gateway, and activate the linking application, after the application is pushed to the terminal. The pull and push process in this case could be a downloading process activated by the terminal. Thus, the application would be much more flexible and could easily be redefined, without the user having to be worried about changes or updates in the application that is the user will be free from interaction when accessing other servers that is accessed through other linking means than the first linking means. Advantageously, the user is able to navigate rapidly among different linking means, which makes it possible for the user to choose between more or less fast servers.

The invention will be described in greater detail in the following by way of example only and with reference to the attached drawings, in which

Fig. 1 shows a comparison between the Internet Architecture and the WAP Architecture;

Fig.2 schematically illustrates a preferred embodiment of a hand portable phone according to the present invention,

Fig. 3 schematically shows the essential parts of a telephone for communicating with a cellular or cordless network,

Fig. 4 schematically shows a connection between a communication terminal and different linking means according to a preferred embodiment according to the present invention,

Fig. 5 shows a flowchart over a method for accessing servers from a cellular telecommunication terminal, according to the present invention;

Fig. 6a-c shows an example of a user interface in a phone according to the present invention;

Fig. 7 shows an example of the architecture of a Wireless Telephony Application (WTA) framework; and

Fig. 8 illustrates an example of using diagnostics according to the present invention.

Fig. 2 shows a preferred embodiment of a cellular communication terminal, hereafter also referred to as a phone, according to the present invention. The phone, which is generally designated by 1, comprises a user interface having a keypad 2, a display 3, an on/off button 4, a speaker 5, and a microphone 6.

The phone 1 according to the preferred embodiment is adapted for communication via a cellular telecommunication network, e.g. a cellular network. However, the phone could also have been designed for a cordless network. The keypad 2 has a first group 7 of keys as alphanumeric keys, by means of which the user can enter a telephone number, write a text message (SMS), write a name (associated with the phone number), etc. Each of the twelve alphanumeric keys 7 is provided with a figure "0-9" or a sign "#" or "*", respectively. In alpha mode each key is associated with a number of letters and special signs used in text editing. The keypad 2 additionally comprises two soft keys 8, two call handling keys 9, and a navigation key 10.

The two soft keys 8 have a functionality corresponding to what is known from the phones Nokia 2110™, Nokia 8110™ and Nokia 3810™. The functionality of the soft key depends on the state of the phone and the navigation in the menu by using a navigation key. The present functionality of the soft keys 8 is shown in separate fields in the display 3 just above the keys 8.

The two call handling keys 9 according to the preferred embodiment are used for establishing a call or a conference call, terminating a call or rejecting an incoming call.

The navigation key 10 is an up/down key and is placed centrally on the front surface of the phone between the display 3 and the group of alphanumeric keys 7. Hereby the user will be able to control this key by simply pressing the up/down key using his/her thumb, i.e. it allows the user to scroll between a group of items in e.g. a menu provided in the user interface. Since many experienced phone users are used to one-hand control, it is a very good solution to place an input key, requiring precise motor movements. Thus, the user may place the phone in the hand between the finger tips and the palm of the hand. Hereby, the thumb is free for inputting information. In another

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embodiment, the scroll key can be a roller key (not shown), which is arranged to rotate in one or several directions. The roller allows the user to roll the key to scroll between different items in a menu. In case of a roller key, the soft key 8 could be arranged to the roller, i.e. upon pressing on the roller the same functionality, as the operation key has, could be entered. The roller key has a functionality corresponding to what is known from e.g. the phone Nokia 7110™, which also supports the Wireless Application Protocol (WAP). The roller key is incorporated by reference in US patent 6,097,964.

Fig. 3 schematically shows the most essential parts of a preferred embodiment of the phone. These parts being essential to understand the invention. The preferred embodiment of the phone of the invention is adapted for use in connection with a GSM network, but, of course, the invention may also be applied in connection with other phone networks, such as other kinds of cellular networks and various forms of cordless phone systems or in dual band phones accessing sets of these systems/networks. The microphone 6 records the user's speech, and the analogue signals formed thereby are A/D converted in an A/D converter (not shown) before the speech is encoded in an audio part 14. The encoded speech signal is transferred to control means 18. The control means 18 comprises a processor, which may support software in the phone. The control means 18 also forms the interface to the peripheral units of the apparatus, wherein the peripheral units can comprise a RAM memory 17a and a Flash ROM memory 17b, a SIM card 16, the display 3 and the keypad 2 (as well as data, power supply, etc.). The control means 18 communicates with a transmitter/receiver means 19, e.g. a circuit which is adapted to send/receive a request/respond to/from a telecommunication network. The audio part 14 speech-decodes the signal, which is transferred from the control means18 to the earpiece 5 via a D/A converter (not shown).

The control means 18 is connected to the user interface. Thus, it is the control means 18 which monitors the activity in the phone and controls the display 3 in response thereto. Therefore, it is the control means 18 which detects the occurrence of a state change event and changes the state of the phone and thus the display text. A state change event may be caused by the user when he activates the keypad including the navigation key 10, and these type of events are called entry events or user events. However, the network communicating with the phone may also cause a state change event. This type of event and other events beyond the user's control are called non user events. Non user events comprise status change during call set-up, change in battery voltage, change in antenna conditions, message on reception of SMS, etc.

Accessing servers from a cellular communication terminal.

Figure 4 schematically shows a system 301, comprising a cellular communication terminal 300, a cellular network 310, and a plurality of web servers 320 and 340 in an Internet network 350. The Internet network 350 uses World Wide Web (WWW) protocols. The cellular network 310 is arranged to establish a wireless connection 305 between a plurality of cellular terminals 300 and linking means 360. Even if the linking means is usually connected to a server to be accessed, it is possible that the linking means may be integrated together with the server to be accessed, as well.

The terminals 300 is able to access a web server 320 via the linking means 360. In general, the linking means 360 is arranged to enable a session for the cellular communication terminal 300 and to forward data packets between the terminal and the web server 320. Thus, the web server 320 is arranged to receive and/or transmit data packets from/to the terminal 300. The transfer of data packets is often mentioned as pull and/or push. A pull could be

described as the terminal using the access point to access a location where the provider information is stored, and might also determine whether it has been updated and to retrieve it if necessary. In some cases it could also be possible to use a push, which could be described as the opposite to pull, i.e. the server maintains address data necessary to transfer updated information to the terminal.

The linking means 360 in this example is typically a gateway or a proxy, but is hereafter referred to as gateway. A proxy server is a process that allows the user to fetch different types of documents, like WWW, FTP, and GOPHER document. The proxy server can store the documents in a cache memory in the radio terminal. What this means is that when anyone retrieves a document, besides transferring these files to the radio terminal, a copy is also made on the local host. Thus, the next time the user accesses that document, a request is sent to the remote host to see if the page has been updated, and if not, it is read directly from the cache memory. A gateway can be a computer that lies at the intersection of a server to be accessed and a client, and routes traffic from one or several servers to the client. Thus, the function of the gateway is to provide a link between two disparate types of electronic communications such as WAP architecture and Internet architecture.

WAP defines a set of standard protocols that enable communication between mobile terminals and network servers. WAP uses a standard naming model according to which standard Internet URLs are used to identify content on origin servers. It also uses content typing. All WAP content is given a specific type consistent with WWW typing which allows a cellular terminal to correctly process the content based on type. WAP also uses standard content formats and standard communication protocols.

In this embodiment, the gateway 360 translates requests from a WAP protocol stack used by the cellular terminal 300 to a WWW (World Wide Web) protocol stack used by the web server. The web server can for example return WAP content such as WML (Wireless Markup Language) or WWW content such as HTML (HyperText Markup Language). In the later case a filter is used to translate the WWW content to WAP content e.g. HTML to WML. The gateway also encodes content sent over the cellular network to the cellular terminal and decodes data sent to it by the cellular terminal.

A Wireless Application Environment which forms an upper layer of the WAP stack includes a browser application, also called a microbrowser. The browser uses wireless markup language (WML) and a lightweight markup language, WMLScript a lightweight scripting language.

The terminals in this type of environment, are preferably cellular communication terminals, like cellular phones. Communication between a cellular terminal 300 and the gateway 360 is according to the Wireless Application Protocol (WAP). WAP specifies an application framework and network protocols for cellular terminals such as mobile telephones, pagers and personal digital assistants. WAP brings Internet content and advanced data services to cellular terminals. WAP can work across differing cellular network technologies and bearer types (GSM, CDMA, SMS). Communication between the web server 320 and protocol gateway 360 is according to WWW protocols.

The cellular terminal differs from a desktop or a portable computer with Internet facilities in that generally it has a less powerful CPU, less memory, restricted power consumption, smaller displays and more limited input devices. The cellular network differs from the Internet network in that it generally has less bandwidth, more latency, less connection stability and less

predictable availability. The WAP architecture is optimised for narrow bandwidth bearers with potentially high latency and is optimised for efficient use of device resources.

In order to communicate with the cellular network 310 and to receive and transmit data packets from at least one web server 320 through the gateway 360, the cellular communication terminal 300 comprises a receiver and a transmitter, see also Fig.3 ref. no. 19. The terminal 300 further comprises a first memory, see Fig.3 ref. no. 16 and 17b, provided with an identifier and at least one item. The item is provided with an access point which indicates the location of the server to be accessed, which could be indicated by means of a URL (Uniform Resource Locator) address. In addition, the item can also comprise data packets from earlier sessions which is updated upon a new session to the same access point. The identifier is used to identify the content at the address provided by the server, wherein the server is accessed by sending the identifier to the linking means to identify which type of content is requested at the server.

Yet another advantageous embodiment is that the terminal can be arranged to give the server access rights to read and/or write to the terminal through first or second linking means. This can be done by providing the browser with a Wireless Telephony Application (WTA) user agent. The WTA is a part of the standard in WAP, and is an application framework for telephony services. The WTA user-agent could be described as a user-agent similar to a standard WML user-agent with the addition of capabilities for interfacing with mobile network services available to a mobile telephony device, e.g. setting up and receiving phone calls.

Figure 7 describes one example of the WTA framework, which is intended to provide an overview of the WTA architecture. Figure 7 also illustrates how a

WTA user-agent 700, the repository (persistent storage) 710 and WTAI (telephony application interface) 720 interact with each other through a man-machine interface 725 (like a display/keyboard/logical indicators) and other entities in a WTA-capable mobile client. Other entities could also be connected to the man-machine interface 725 and can be device specific features 730 as a phonebook and/or it can be a network layer 740 like call control. A WAE (Wireless Application Environment) user-agent 750 is able to retrieve its content via a WAP gateway 760, and provide the interface 725 with actions from a Internet server 770. It is further possible to provide a firewall 780 between the Internet server 770 and the WAP gateway 760. In addition, the WTA user-agent 700 is also able to retrieve content from the repository 710. Further, WTAI 720 ensures that the WTA user-agent can interact with mobile network functions (e.g. setting up calls) and device specific features (e.g. manipulating the phonebook). A WTA server 790 can be accessed through the WAP gateway 760, and is thought of as a web server delivering content requested by a client. Like an Internet web browser, the WTA user-agent 700 uses URLs to reference content on the WTA server 790. A URL can also be used to reference an application on a web server (e.g. an script) that is executed when it is referenced. Such applications can be programmed to perform a wide range of tasks, for example generate dynamic content and interact with external entities. The WTA server 790 may also make use of this concept. By referencing applications on the WTA server 790 it is possible to create services that use URLs to interact with the mobile network 795 and other entities (e.g. a voice mail system). Thus, the concept of referencing applications on the WTA server 790 provides a simple but yet powerful model for how to seamlessly integrate services in e.g. the mobile network 795 with services executing locally in a WAP client 796.

Also, upon sending data like a response to a request from a server, it is very common to use HTTP POST, which is a popular method for sending data to a

server. However, in some cases it would be appreciated to give the server access rights, in order to read content provided in the terminal with or without any user interaction. This could be solved by providing the terminal with a WTA user-agent, since this architecture as shown in Fig. 7 is able to support both read and write functions by using PULL and PUSH commands. One example of a case where it should be interesting to give the server access rights to both read and write, is when making diagnostics in case the phone is not working properly. Therefore, the terminal can be further arranged to send or receive a diagnostic request to/from a server provided with diagnostic means. In this way it can be possible to initiate a test of the functionality of the terminal by means of the diagnostic means which can be allowed to perform read and write to the terminal. The diagnostics can be activated by the phone, which can send a PULL to the server, and the server may identify the phone and the diagnostic request. Thereafter, the server can activate a script, e.g. provided in a WML deck, which establish a connection to phone. When the server is connected to the phone, the server can read what is in the terminal's memory and test the functions of the terminal. If the server detects some erroneous behaviour in the phone, the server is able to correct the errors by writing directly into the terminal. The writing could be done using SMS or similar methods of transmitting data. As an alternative, it could be possible for the server to activate the diagnostics, i.e. without requiring any interaction from the phone. This could be useful in a situation when a telephone provider has discovered some unwanted behaviour of a particular phone model. Thus, instead of waiting on all phones to send their PULL, the server reads and writes the wanted amendments to the phone. This is done by doing an asynchronous PULL, i.e. a PULL which is not user initiated. This could e.g. be a service loading mechanism. Also, when the browser is provided with WTA, the problems regarding security and privacy in the terminal (phone) are taken care of, since this is already build in as a part of WTA.

This above mentioned example of using diagnostics is illustrated in Fig. 8. In Fig. 8 shows a situation where an operator have access to a list of clients, having access to the operators services e.g. a server provided by the operator. In this example the operator would like to perform diagnostics of a client, i.e. a terminal such as a cellular phone provided with a WTA user agent as shown in Fig. 7. As a first step, the operator initiates a request, 1, by sending a PUSH to perform a diagnostic test of the client. The request is first sent to a server, which accepts the request and sends an indication to linking means (Proxy), 2, that the client needs a diagnostic test. Except the indication of the request, this indication may also comprise a URL of the server and a dial string. The linking means forwards the request to the client via one-way SMS, 3. If the client is engaged in a call the request is queued. Otherwise, the client automatically performs an authentication of the request and informs the linking means that a data call is required, 4. The linking means verifies the client and establishes a data connection to the server, 5. When the data call is established, the client automatically performs an PULL request for the provisioning information, 6. The server authenticates the client and sends a PUSH command to perform the diagnostic test, and correct any eventual errors, 7. The PUSH command is executed in the client to perform the diagnostic test and sends the result of the operation to the server using PULL, 8. The server verifies the result, and then form a correction request for correct any possible errors, and sends this to the client as an PUSH reply, 9. The client executes the correction request, and sends the result of the operation to the server using PULL, 10. The server replies with a disconnect request to the client, 11. The server updates the originating network element that the diagnostic test has been performed, 12. The client terminates the session and data connection, 13. Finally, the linking means terminates the connection to the server, 14, and the diagnostic test is finished.

Also, an advantageous embodiment of the present invention is that the content in the item can comprise a script, which is arranged to provide provisions for accessing servers through linking means. The script can activate or download linking applications from a gateway, i.e. an application which makes it possible to receive and/or transmit different types of data packets between the server and the terminal. For example, the different types of data packets can be a particular text format, software programs, picture formats. This allows the processing power of the terminal to be restricted, allows a standard WAP browser to be used and provides flexibility for new features. This can be done by creating extensions to WML and WML script. Thus, the script can make it possible to access data packets, which might not be supported by the software in the terminal, by downloading the appropriate application, supporting the type of data format, directly to the terminal. In general, the data packets, can be data (content) stored or generated at an origin server 320. The content of the data packet is typically displayed or interpreted by the client.

It is further possible to have one or more linking applications in the terminal from the beginning, i.e. to provide the linking application in the terminal before establishing a connection to a gateway. This is typically done in the manufacturing process of the terminal, wherein the linking application can be a software program controlling the access to the server.

As mentioned before, the Wireless Application Environment forms an upper layer of the WAP stack, which includes a browser application. To access different servers the terminal must be provided with a browser application, like a so called microbrowser. The browser application is arranged to establish a session to at least a first gateway by reading the item in the first memory. A user interface is connected to the browser application having a display for displaying content and user input means to control the browser. An example

of how the user interface can be displayed during a session is shown in Fig. 6a-c. The input means is shown in Fig. 2 as the keypad 2. The browser can be arranged in a ROM memory or on a SIM card, as shown in Fig. 3 ref. No. 17b and 16, respectively.

In an another preferred embodiment, the terminal can be provided with a second memory, which is arranged to copy items from a session. Thus, the items from a session can be stored in this second memory. Typically, this second memory can be a cache memory, which means that the items from the latest session can be temporarily saved in the second memory. The cache memory could be identified as the RAM memory 17a in Fig. 3. As an alternative, it can also be possible to save the items from a session in a permanent storage memory, which means that the user is able to confirm if the items are going to be saved or deleted. The permanent storage memory could be identified as the SIM card 16 and/or the ROM memory 17b as shown in Fig. 3.

In accordance with the present invention, the browser application is arranged dynamically. This means that, if an access point indicates a location to a second gateway 330, which gives access to the server 340, the browser application will automatically activate the transmitter to send a request to the first gateway 360 to access the server 340 through the second gateway 330. This request can comprise the URL address of the server, together with the identifier, identifying the content of the requested content, and that the user will accept to connect to another gateway, in order to reach this address. Thus, this will allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means. Naturally, it can still be possible to enable an authorisation confirmed by the user, but this could slow down the user, when he/she is going to browse to a gateway which is not the first gateway. Of course, there might be

some gateways which contains a certain risk, upon entering, but in such cases it can be possible for the user to set some security settings in the browser application, in order to minimise the risk of security hazards. An example illustrating how to send and receive data packets from the server is described in more detail with reference to Fig. 5.

The method for accessing servers through a cellular communication terminal.

Fig. 5 shows a flow chart, in accordance with the present invention, describing a way of accessing servers through a cellular communication terminal. The cellular telecommunication terminal in this example is the same type as described in Fig.2 and 3, and the apparatus is hereafter also referred to as a phone. The phone is provided with a browser application and a first memory which enables the user to browse among different objects on a server. This browsing can be done by using a microbrowser supporting WAP. When the phone is activated and establishes, a wireless connection to a cellular network, e.g. when the phone roams to a new network, "START" 500, it is possible to communicate with different telecommunication services, e.g. WAP related services, i.e. a service which can be accessed from a server to the phone. By using this kind of service, it might be possible to obtain information from a server to the phone, e.g. by using SMS (Short Message Service), or a similar service.

First, the user may select a browser menu on a display controlled by the browser application, which is connected to the first memory. In this browser menu the user can choose to establish a session to a server. To establish the session the user selects the service connected to the server from the menu. The selection is done by e.g. pressing on one of the softkeys as shown in Fig. 2. Then the browser application reads and identifies the content of an item from the first memory "READ ITEM" 510. This item comprises at least one

access point, which indicates the location of the server to be accessed. The item might comprise more content than the access point, e.g. it is possible to have data packets from an earlier session which is updated upon a new session to the same access point. The first memory is also provided with an identifier, which is used to identify the type of content at the server. After reading the item from the first memory, the browser application generates a request, "GENERATE REQUEST" 520. This request comprising information of the access point to be accessed, and the identifier identifying the type of content at the server. The information could for example be a URL address, where the server is located.

The request is then forwarded to the linking means, "FORWARD REQUEST" 530, in order to establish a session between the linking means and the terminal. The linking means could be a gateway or a proxy server, which links the requested information to the correct access point. If the linking means do not respond to the request, "RECEIVED REQUEST?" 540, e.g. because the linking means is broken or the terminal does not have coverage to the cellular network, the terminal could receive an error message, which says that a connection to the linking means could not be established. Then, the user could choose to re-send the request once more, "FORWARD REQUEST" 530.

In an advantageous embodiment of the present invention, the content of the item can comprise a script, which is arranged to provide provisions for accessing servers through the linking means. The script can activate or download linking applications from a gateway, i.e. an application which makes it possible to receive and/or transmit different types of data packets between the server and the terminal. For example, the different types of data packets can be a particular text format, software programs, different picture formats, etc. This allows a standard WAP browser to be used and provides flexibility

for new features. This can be done by creating extensions to WML and WML script. Thus, the script can make it possible to access data packets, which might not be supported by the software in the terminal, by downloading the appropriate application, supporting the type of data format, directly to the terminal. In general, the data packets, is data (content) stored or generated at an origin server. The content of the data packet is to be displayed or interpreted by the client.

It is further possible to have one or more linking applications in the terminal from the beginning, i.e. to provide the linking application in the terminal before establishing a connection to a gateway. This is typically done in the manufacturing process of the terminal, wherein the linking application can be a software program controlling the access to the server.

After the terminal has been connected to the linking means, the linking means can control that the access point is correct, "ACCESS POINT KNOWN?" 550. For example, if the user has requested access to a server which no longer exists, is misspelt, or for some other reason is no longer known, the linking means could transmit an error message. This error message could then be displayed on the terminal, "DISPLAY ERROR MESSAGE" 560, providing the user with information about the error. Then the session could be terminated, either by the user or the linking means, "END" 570. If the access point is known, the linking means can send a pull to the server, "SEND PULL TO THE SERVER" 580. A pull could be described as the terminal uses the access point to access a location where the provider information is stored, and might also determine whether it has been updated and to retrieve it if necessary. In some cases it could also be possible to use a push, which could be described as the opposite to pull, i.e. the server maintains address data necessary to transfer updated information to the terminal.

Finally, when the server has sent the requested information to the linking means, the information will be linked further from the linking means to the terminal, "DISPLAY CONTENT" 590.

In accordance with the present invention, the browser application is arranged dynamically, i.e. if the access point indicates a location to another linking means, which gives access to the server, the browser application will automatically activate a transmitter in the terminal to send a request to the first linking means to access the server through the second linking means. This request can comprise the URL address of the server, and that the user will accept to connect to the second linking means, in order to reach this address. Thus, this will allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means. Naturally, it can still be possible to enable an authorisation confirmed by the user, when he/she is going to browse to another linking means which is not the first linking means.

The user interface.

With reference to Fig. 6a, 6b and 6c, an example is shown of how the display in a user interface can act when accessing a server according to the present invention. The user interface may comprise the same elements as shown in Fig.2, i.e. a keypad 2, a display 3, an on/off button 4, a speaker 5 and a microphone 6. Also, the terminal is provided with control means 18 as shown in Fig. 3, which controls the user interface. Starting from Fig. 6a, there is a layout 31 presented on a display in a phone, as shown in Fig.2 and 3, which indicates signal strength 35 from the cellular telecommunication network "D1 Telekom" 40, the battery power 45 and a clock showing the time 50 in hours and minutes. Preferably, the display in the phone is an LCD (Liquid Crystal Display) display. The display, can be controlled by the control

means. The layout 30 presents an example of the phone in idle mode, i.e. when the phone is activated and awaiting an action, e.g. an incoming or outgoing call. In the bottom of the display there are two items which are denoted as "Menu" 55 and "Names" 60. If the user selects "Names" 60 he/she can e.g. access a built in phone book. If the user selects "Menu" 55, he/she can select among several different menus. The actual selection of features in the bottom of the display, like "Menu" and "Names", can be selected by means of the soft keys disclosed with reference to Fig. 2.

One of the menus can be the next layout 65 called "Browser" 70. If the user chooses to use this menu, he/she can access different telecom related information services, e.g. Internet. One way of accessing this kind of information is to use the Wireless Application Protocol, WAP.

If the user chooses to select "Home" 71, this may lead to the next layout 75, which graphically indicates, "Connecting to Service" 80. This shows an example of how the phone is trying to establish a connection to e.g. Internet, by sending an access request, through a first gateway, to a server. If a connection is established to the first gateway, some kind of welcome text for a home page might be displayed, "Welcome to D1 Web." 90. If the user selects "Options" 90 a list of selections can be displayed as shown in the following layout 110. For example, the different choices could be "Currency converter" 115, "White pages" 120, "Pizza" 125, "CNN" 130, etc. In this example the user selects to use the currency converter 115, and browses further to the server providing this service in the next layout 135. In this layout 135 a browser display is shown with the selected item, which is indicated as a link to a service which provides a currency conversion. The user can select to send a request for the chosen item, by using the "Options" 140.

This leads to the next layout 150, as shown in layout 75, which graphically indicates, "Connecting to Service" 155. This shows an example of how the phone is trying to establish a connection to e.g. the application (currency converter 115), by sending a request to the server. If a connection is established, some kind of information text for the currency converter might be displayed. The following reference numbers refers to Fig. 6b: 160-230. For example, the layout can be provided with different editable fields and selection list placeholders, which in this example are shown in square brackets ([ ]). The selection which is highlighted can indicate a default state of the selection. In these fields, the user can input an amount, "Amount:[ ]" 165, in one currency, "From:[DKK]" 170, converted into another currency, "converted to:[DKK]" 175. When the user is going to enter an amount 185, e.g. 200, on how much he/she would like to convert, the layout may e.g. change its outlook like it does in layout 180. Thereafter, the user may press Ok 190, whenever he/she is done, or clear the amount by selecting "Clear" 191.

The steps for choosing a first currency to convert from 170, and choosing a second currency to convert to 175, are repeated in the layouts 195-205. Thereafter, the user may select "Options" 210, in layout 205, which in this example activates the calculation of the currency conversion and displays the result 220 in the next layout 215.

If the user would continue with his/hers currency conversion, and choose another currency to convert to, the user selects the option "converted to [DKK]:" 225, which becomes highlighted upon selection, and is shown in layout 230. The following reference numbers refers to Fig. 6c: 235-270. In the next layout 235, a selection list of available currencies is displayed. The user selects e.g. *USD* 240, and selects the entry by selecting "Ok" 245. The next layout 250 highlights the selected currency USD 255 to convert to. Thereafter,

the user may select "Options" 260, which in this example once again activates the calculation of the currency conversion and the result "[USD]: 36,36" 265 is displayed with the selected information in the next layout 270.

If the currency conversion service is provided on a second gateway, instead of the first gateway, the invention enables the first gateway to automatically forward the request to the second gateway. In this manner, this action can be invisible for the user, and free him/her from any user interaction.

The invention is not limited to the above described and in the drawing shown an example of embodiments but can be varied within the scope of the appended claims. For example, a gateway and a proxy is normally working as a server, and could therefore be working as one unit, i.e. gateway/proxy is also working as a server.

CLAIMS

1. A cellular communication terminal (1,300) for accessing servers (320-360), said terminal comprising

- a receiver and a transmitter (19) arranged to receive and transmit data packets from at least one server (320,340) through linking means (360) arranged to forward the data packets between the terminal (1,300) and the server (320,340);
- a first memory (16,17b) comprising an identifier and at least one item, the item is provided with an access point which indicates the location of the server (320,340) to be accessed, wherein the server (320,340) is accessed by sending the identifier to the linking means (360) to identify the content to be accessed at the server (320,340);
- a browser application, arranged to establish a session to at least a first linking means (360) by reading an item from the first memory (16,17b), and
- a user interface (2,3,4,5,6) connected to the browser application having display means (3) for displaying content received from the server (320,340) and user input means (2,4,5) to control the browser application,

characterized in that the browser application is arranged dynamically, such that if the access point indicates a location to a second linking means (330) giving access to the server (340), the browser application will automatically activate the transmitter (19) to send a request to the first linking means (360) to access said server (340) through second linking means (330), in order to allow the user to be free from interaction when accessing other servers that are accessed through other linking means than the first linking means.

2. A cellular communication terminal according to claim 1, characterized in that the terminal (1,300) is provided with a second memory (17a) arranged to copy the item from a session.

3. A cellular communication terminal according to claim 2, characterized in that said second memory (17a) is a cache memory.

4. A cellular communication terminal according to any of the preceding claims, characterized in that said first memory is a SIM card (16).

5. A cellular communication terminal according to any of the preceding claims, characterized in that said communication terminal is arranged to use a desktop computer or a portable computer as the first and/or second linking means (330,360).

6. A cellular communication terminal according to any of the preceding claims, characterized in that the item further comprises a script, which is arranged to provide provisions for accessing servers (320,340) through linking means (330,360).

7. A cellular communication terminal according to claim 6, characterized in that said script is arranged to activate a linking application.

8. A cellular communication terminal according to any of the preceding claims, characterized in that said terminal is arranged with a linking application, to control the access to different servers.

9. A cellular communication terminal according to any of the preceding claims, characterized in that said terminal is arranged to give the server access rights

to read and/or write to the terminal through the first or the second linking means.

10. A cellular communication terminal according to claim 9, characterized in that said terminal is further arranged to send or receive a diagnostic request to/from the server provided with diagnostic means, in order to initiate a test of the functionality of said terminal by means of the diagnostic means which is allowed to perform read and write to the terminal.

11. A cellular communication terminal according to claim 9 or 10, characterized in that said browser is provided with a Wireless Telephony Application (WTA) user agent, in order to form an interface which supports security and privacy in the terminal.

12. A method for accessing servers through a cellular communication terminal (1,300), said communication terminal comprising a first memory (16,17b) and a browser application, wherein the method comprises the following steps:

- reading an item (510) in said first memory (16,17b) and an identifier, by means of said browser application, said item comprising at least one access point indicating the location of a server (320,340) to be accessed;
- generating a request (520) by means of said browser application, said request comprising information of the requested access point, and the identifier identifies the content of the requested access point,
- initiating a session to a first linking means (360), by forwarding the request from the communication terminal (1,300) to the first linking means (360), said linking means sending data packets between the terminal (1,300) and the server (320,340),
- identifying the request (550) at the first linking means (360), and

- establishing a session between said terminal (1,300) and said first linking means (360) by sending a response from the first linking means to the terminal,

characterized in that the browser application is dynamic, such that if the access point is indicating a location to a second linking means (330) giving access to said server (340), the browser application is automatically activating a transmitter (19) by sending a request to the first linking means (360), forwarding the request to said second linking means (330) and providing access (580) to the server (340), in order to allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means.

13. A method according to claim 12, characterized in that the item in the session are copied and stored in a second memory (17a).

14. A method according to claim 12 or 13, characterized in that said communication terminal is using a desktop computer or a portable computer as the first and/or the second linking means (330,360).

15. A method according to claim 12, 13 or 14, characterized in that the item further comprises a script, which provides provisions for accessing servers (320, 340) through linking means (330,360).

16. A method according to claim 15, characterized in that said script is activating a linking application.

17. A method according to claim 12, 13, 14, 15 or 16, characterized in that said terminal is provided with a linking application, controlling the access to different servers.

18. A method according to claim 12, 13, 14, 15 or 16, characterized in that said terminal giving the server access rights to read and/or write to the terminal through the first or the second linking means.

19. A method according to claim 18, characterized in that said terminal sends or receives a diagnostic request to/from a server provided with diagnostic means, initiating a test of the functionality of said terminal by means of the diagnostic means having access rights to read and write to the terminal.

20. A method according to claim 18 or 19, characterized in that said browser using a Wireless Telephony Application (WTA) user agent, to form an interface which supports security and privacy in the terminal.

21. A system (301) for accessing servers (320-360), said system (301) comprising

- a cellular communication terminal (1,300) having:
  - a receiver and a transmitter (19) arranged to receive and transmit data packets from at least one server (320,340) through linking means (360) arranged to forward the data packets between the terminal (1,300) and the server (320,340);
  - a first memory (16,17b) comprising an identifier and at least one item, the item is provided with an access point which indicates the location of the server (320,340) to be accessed, wherein the server (320,340) is accessed by sending the access point and the identifier to the linking means (360) to identify the content to be accessed;
  - a browser application, arranged to establish a session to at least a first linking means (360) by reading an item from the first memory (16,17b), and

- a user interface (2,3,4,5,6) connected to the browser application, having display means (3) for displaying content and user input means (2,4,6) to control the browser application,
- a cellular communication network (310), arranged to establish a connection (305) between the cellular communication terminal (1,300) and linking means (360),
- at least one first linking means (360), arranged to enable a session for said cellular communication terminal (1,300) and to forward data packets between the terminal and a server (320,340), and
- at least one server (320,340), arranged to receive and/or transmit data packets from/to the terminal (1,300),

characterized in that the browser application is arranged dynamically, such that if the access point indicates a location to second linking means (330) giving access to the server (340), the browser application will automatically activate the transmitter (19) to send a request to the first linking means (360) to access said server (340) through second linking means (330), in order to allow the user to be free from interaction when accessing other servers that is accessed through other linking means than the first linking means.

22. A system according to claim 21, characterized in that the terminal (1,300) is provided with a second memory (17a) arranged to copy the item from a session.

23. A system according to claim 22, characterized in that said second memory (17a) is a cache memory.

24. A system according to claim 21, 22 or 23, characterized in that said first memory is a SIM card (16).

25. A system according to claim 21, 22, 23 or 24, characterized in that said communication terminal is arranged to use a desktop computer or a portable computer as the first and/or the second linking means (330,350).

26. A system according to claim 21, 22, 23, 24 or 25, characterized in that the item further comprises a script, which is arranged to provide provisions for accessing servers (320,340) through linking means (330,360).

27. A system according to claim 26, characterized in that said script is arranged to activate a linking application.

28. A system according to any one of the claims 21-27, characterized in that said terminal is arranged with a linking application, to control the access to different servers.

29. A system according to any one of the claims 21-28, characterized in that communication between the server and the terminal is in accordance with the Wireless Application Protocol.

30. A system according to claims to any one of the claims 21-28, characterized in that said terminal is arranged to give the server access rights to read and/or write to the terminal through the first or the second linking means.

31. A system according to claim 30, characterized in that said terminal is further arranged to send or receive a diagnostic request to/from the server provided with diagnostic means, in order to initiate a test of the functionality of said terminal by means of the diagnostic means which is allowed to perform read and write to the terminal.

32. A system according to claim 30 or 31, characterized in that said browser is provided with a Wireless Telephony Application (WTA) user agent, in order to form an interface which supports
security and privacy in the terminal.

33. A communication device for accessing a server accessible via a proxy, the device comprising a transceiver, the transceiver being arranged to establish a session with a proxy, the proxy allowing access to the server such that where a further proxy provides access to said server a connection is first formed between said proxies.

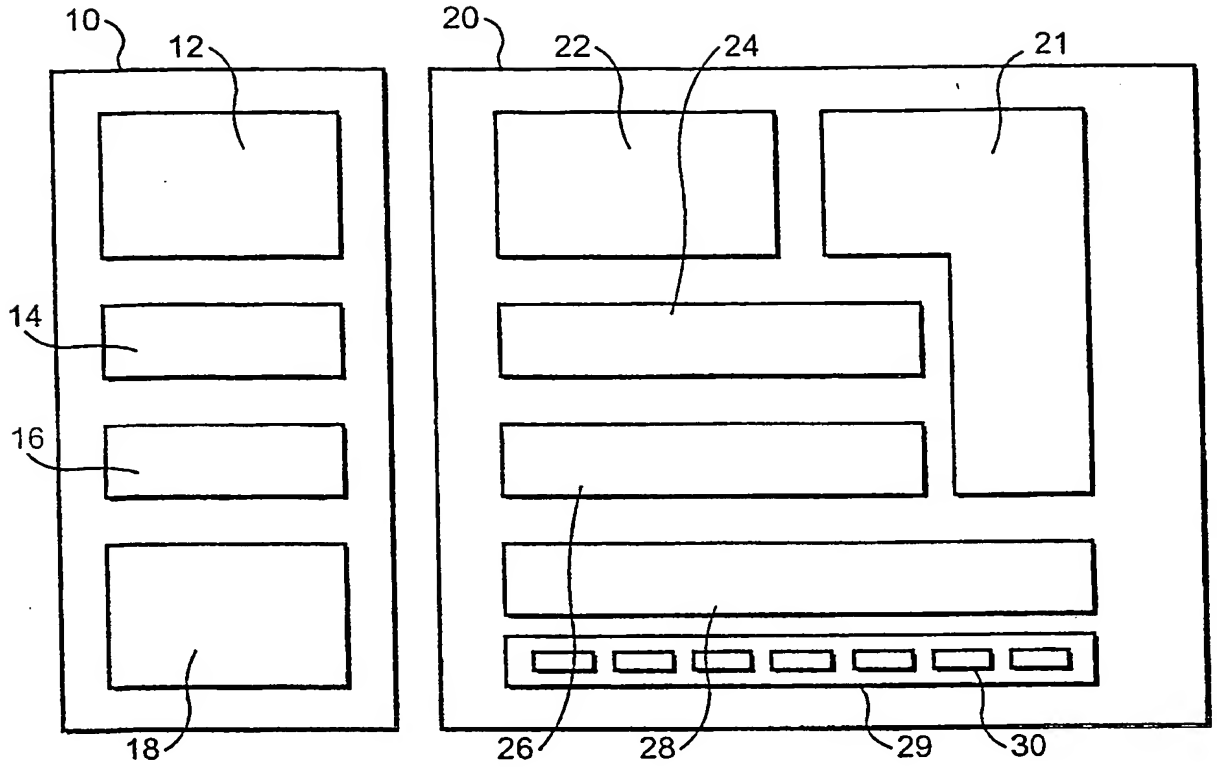

FIG. 1

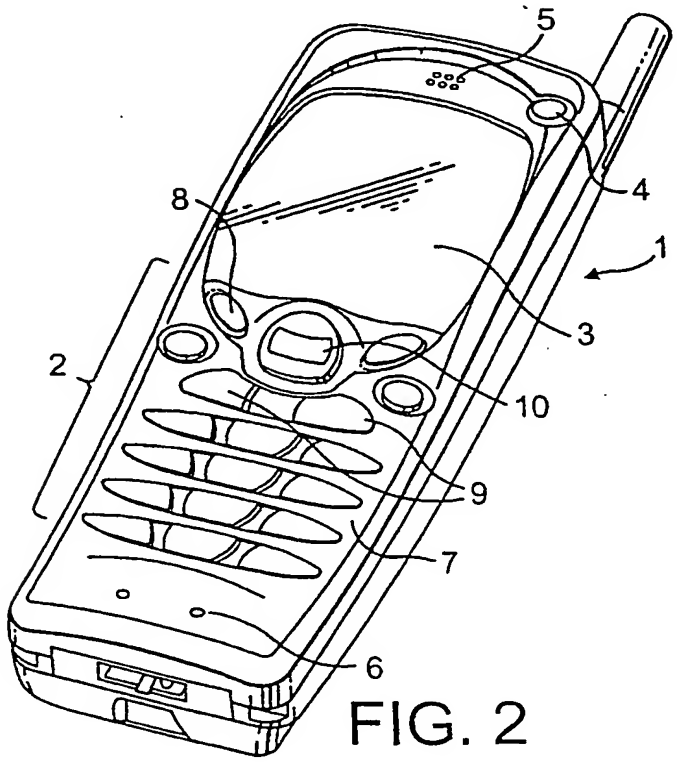

FIG. 2

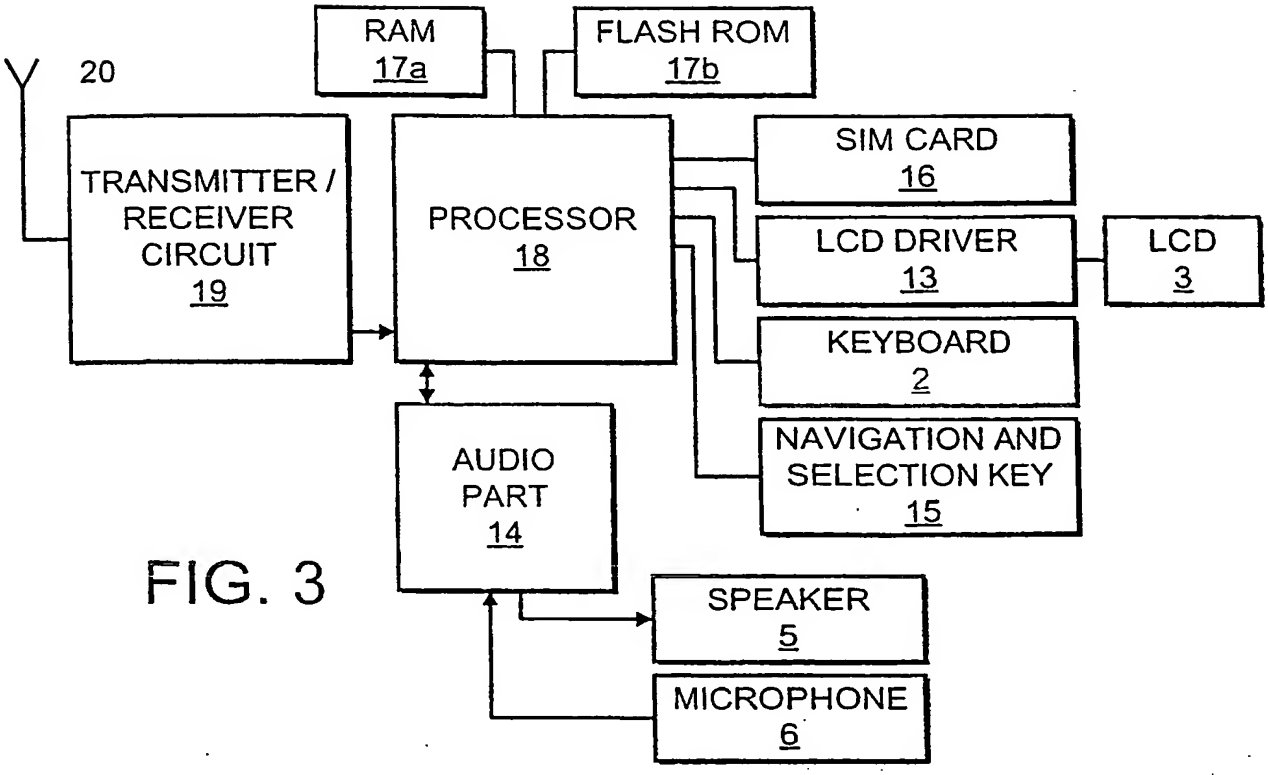
20
RAM
17a
FLASH ROM
17b
TRANSMITTER / RECEIVER CIRCUIT
19
PROCESSOR
18
SIM CARD
16
LCD DRIVER
13
LCD
3
KEYBOARD
2
AUDIO PART
14
NAVIGATION AND SELECTION KEY
15
SPEAKER
5
MICROPHONE
6

FIG. 3

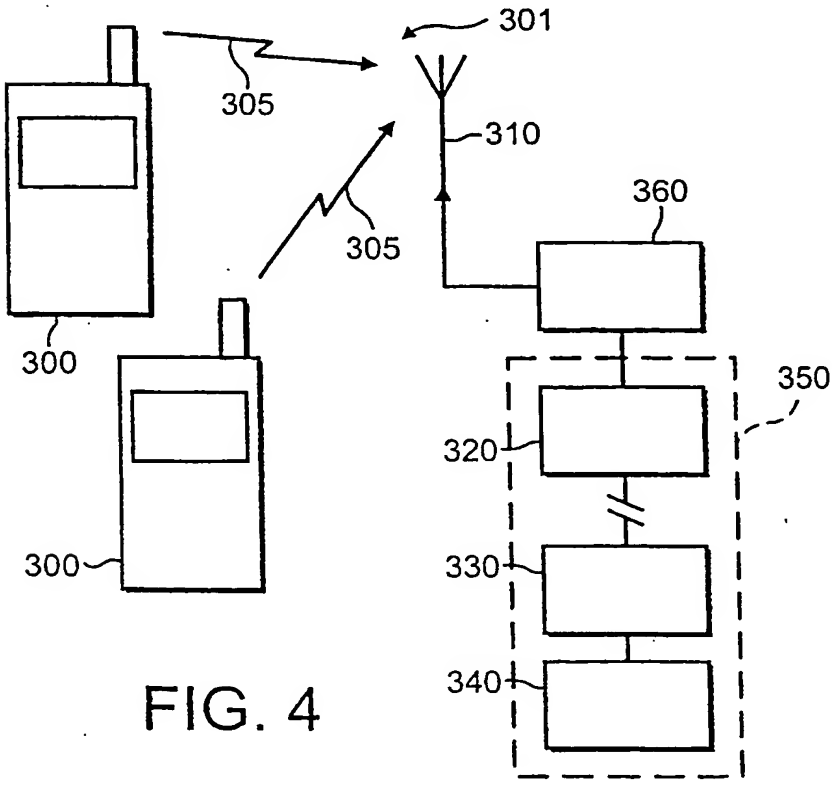
301
305
310
360
305
300
350
320
300
330
340

FIG. 4

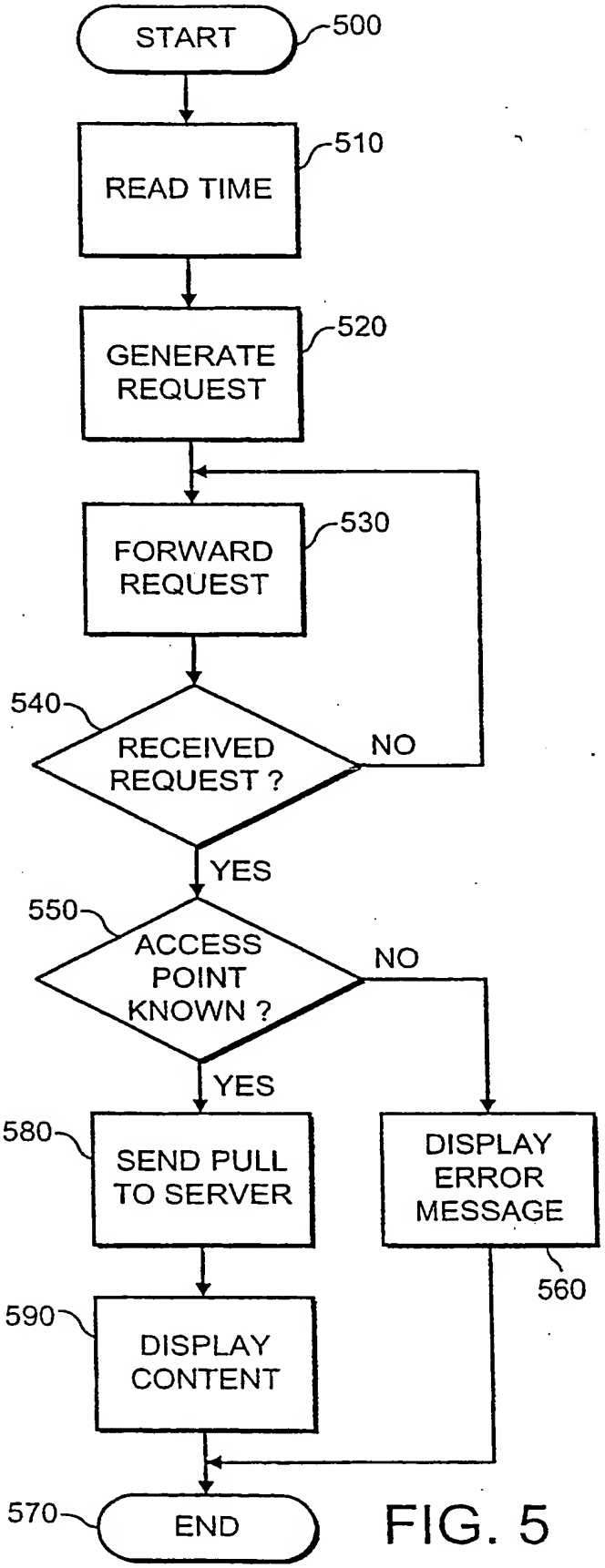
START
500
READ TIME
510
GENERATE REQUEST
520
FORWARD REQUEST
530
540
RECEIVED REQUEST ?
NO
YES
550
ACCESS POINT KNOWN ?
NO
YES
580
SEND PULL TO SERVER
DISPLAY ERROR MESSAGE
560
590
DISPLAY CONTENT
570
END

FIG. 5

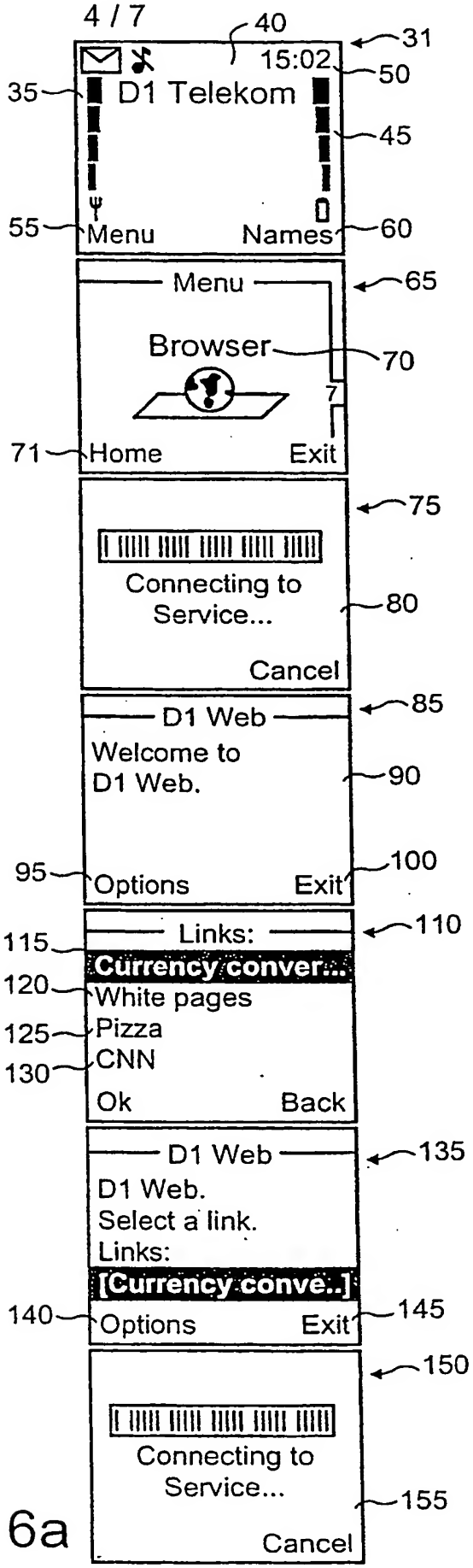
40
31
15:02
50
35
D1 Telekom
45
55
Menu
Names
60
Menu
65
Browser
70
7
71
Home
Exit
75
Connecting to
Service...
80
Cancel
D1 Web
85
Welcome to
D1 Web.
90
95
Options
Exit
100
Links:
110
115
Currency conver...
120
White pages
125
Pizza
130
CNN
Ok
Back
D1 Web
135
D1 Web.
Select a link.
Links:
[Currency conve..]
140
Options
Exit
145
150
Connecting to
Service...
155
Cancel

FIG. 6a

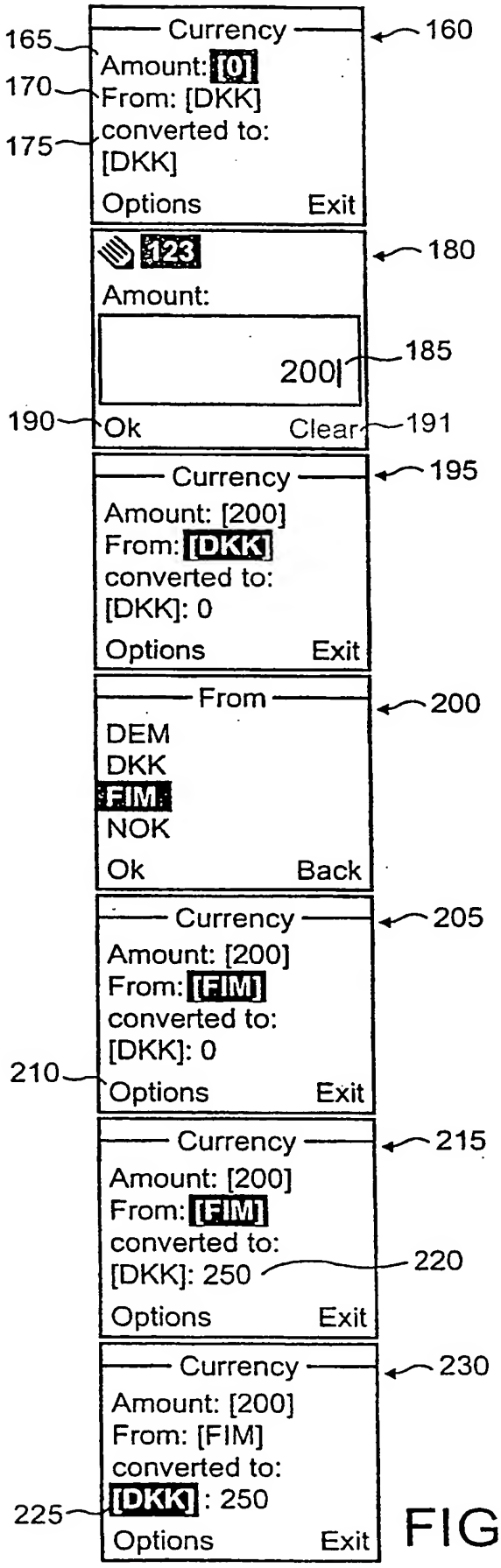
Currency
Amount: [0]
From: [DKK]
converted to:
[DKK]
Options
Exit
165
160
170
175
123
Amount:
200
180
185
Ok
Clear
190
191
Currency
Amount: [200]
From: [DKK]
converted to:
[DKK]: 0
Options
Exit
195
From
DEM
DKK
FIM
NOK
Ok
Back
200
Currency
Amount: [200]
From: [FIM]
converted to:
[DKK]: 0
Options
Exit
205
210
Currency
Amount: [200]
From: [FIM]
converted to:
[DKK]: 250
Options
Exit
215
220
Currency
Amount: [200]
From: [FIM]
converted to:
[DKK]: 250
Options
Exit
230
225

FIG. 6b

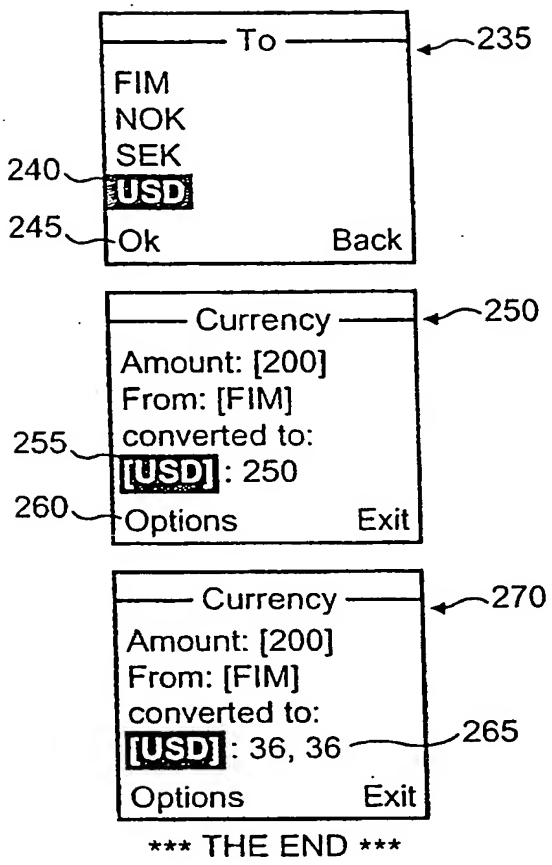
To
235
FIM
NOK
SEK
240
USD
245
Ok
Back
Currency
250
Amount: [200]
From: [FIM]
converted to:
255
[USD]: 250
260
Options
Exit
Currency
270
Amount: [200]
From: [FIM]
converted to:
[USD]: 36, 36
265
Options
Exit
*** THE END ***

FIG. 6c

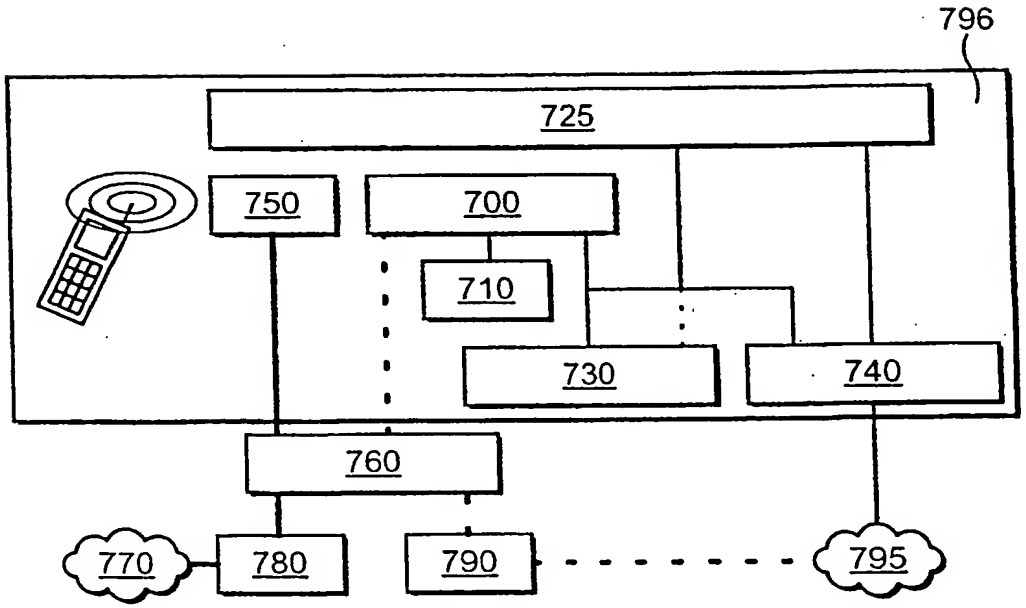
796
725
750
700
710
730
740
760
770
780
790
795

FIG. 7

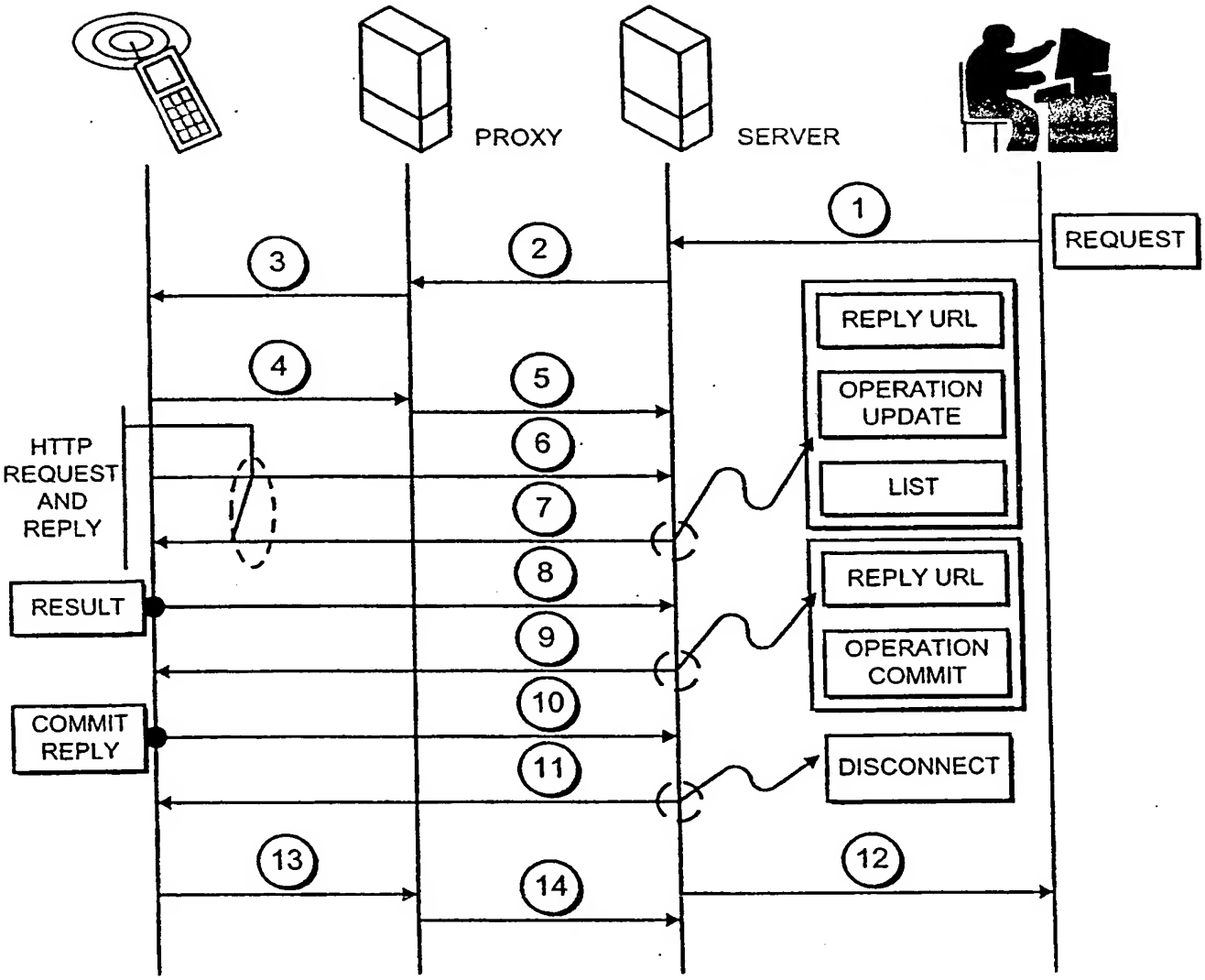
PROXY
SERVER
1
REQUEST
2
3
REPLY URL
OPERATION UPDATE
LIST
4
5
6
HTTP REQUEST AND REPLY
7
8
RESULT
REPLY URL
OPERATION COMMIT
9
10
COMMIT REPLY
11
DISCONNECT
13
14
12

FIG. 8

INTERNATIONAL SEARCH REPORT

International Application No
PCT/IB 00/00826

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 17227 A (IBM UK ;IBM (US)) 8 April 1999 (1999-04-08)	33
A	page 14, line 4 -page 15, line 27 page 21, line 19 - line 27	1-32
A	SIETMANN R: "MOBIL INS INTERNET. WIRELESS APPLICATION PROTOCOL ADAPTIERT MOBILTELEFONE FUER DAS WWW" CT MAGAZIN FUER COMPUTER TECHNIK,DE,VERLAG HEINZ HEISE GMBH., HANNOVER, no. 4, 1998, pages 202-207, XP000732823 ISSN: 0724-8679 the whole document	1-33

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date.

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 October 2000	16/10/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Heinrich, D

1

INTERNATIONAL SEARCH REPORT

Int tional Application No
PCT/IB 00/00826

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9917227 A	08-04-1999	US 6085193 A	04-07-2000
		EP 1018085 A	12-07-2000